


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**RANGE PLANT COMMUNITY TYPES
AND CARRYING CAPACITY FOR THE**

PEACE RIVER PARKLAND SUBREGION OF ALBERTA



Canada 

Alberta
SUSTAINABLE RESOURCE
DEVELOPMENT

GUIDE TO RANGE PLANT COMMUNITY TYPES AND CARRYING CAPACITY FOR THE PEACE RIVER PARKLAND SUBREGION IN ALBERTA

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Executive Summary

The Peace River Parkland Natural Subregion accounts for only 0.5 percent of the province and is characterised by gently rolling cultivated plains and steep south-facing grassy and forested slopes along the Peace River and its tributaries. Vegetation is a mosaic and dominated by forests of aspen and white spruce, wetlands and small remnant grasslands on the uplands, dry grasslands and aspen forests on valley slopes. The vegetative communities in this subregion are important because they provide summer range for livestock, prime habitat for many species of wildlife, productive watersheds, recreational areas and timber harvesting. Despite the importance of these vegetation types there is little information on their ecology. The lack of information makes it very difficult to develop sustainable management prescriptions for multiple uses. As a result guides like this and "Ecosites of Northern Alberta" (Beckingham and Archibald 1996) are being developed to provide a framework that will easily group the vegetative community types. It is hoped these classification systems can be used by field staff to assess the ecology of the sites and develop management prescriptions on lands within each region.

This guide represents the analysis of 756 plots described in the Peace River Parkland subregion. These 756 plots represent 66 plant community types. These are split into:

- A. Upland/Slope grasslands and shrubland plant community types (16 types)
- B. Moist shrubland community types (9 types)
- C. Grazing successional grassland and shrubland community types (8 types)
- D. Deciduous community types (13 types)
- E. Conifer/Mixedwood community types (7 types)
- F. Tame community types (13 types)

Acknowledgements

In January 1999 the Rangeland Health Assessment Project was initiated. Its purpose was to coordinate the development of rangeland health assessment methods and ecological site descriptions for both forested and grassland dominated rangelands in the province and transfer the new technology (awareness, information and tools) to livestock producers, staff and other stakeholders. This document "Guide to range plant communities and carrying capacity for the Peace River Parkland subregion in Alberta, First Approximation" is an effort to organize existing range plant community information for the natural subregion into an ecological framework, with the ultimate goal of developing ecological site descriptions as outlined in the Alberta Rangeland Health Task Group, Terms of Reference (1999). This guide builds on the Dry Mixedwood Guide (Willoughby et al. 2006) and has additional information about shrublands and grasslands which are located on the uplands and slopes of the region. It also tries to incorporate the work done by Beckingham and Archibald (1996) on the forested ecosites of the Boreal Mixedwood and work done by Thompson and Hansen (2003) on the lotic and lentic communities of the Mixedwood subregions. We would also like to acknowledge the PFRA's (Prairie Farm Rehabilitation Administration) Green Cover Program within Agriculture and Agri-Food Canada for their support in publishing digital copies of this guide.

As we collect new research information, the first approximation will evolve into a range ecological site field guide. One major outcome of the project will be to produce ecological base information, which will be used to develop management tools for northern livestock producers, resource managers and other stakeholders of the region. This new knowledge will aid in the sustainable grazing of plant communities, and maintain the good health and proper functioning of these ecosystems.

1.0 Introduction

The province of Alberta is covered by a broad spectrum of ecological regions from prairie in the South, to alpine vegetation in the mountains and dense forests in the Central and Northern parts of the province. These broad ecological regions have been classified into 6 regions and 21 subregions (Natural Regions Committee 2006). Within each subregion, there are groups of plant communities, which exist under similar, localized, environmental conditions and can be further influenced by human impacts. Sustainable management of these subregions requires an understanding of the ecology of the site coupled with the ability to recognize the vegetative communities that have similar productivity and response to disturbance.

Vegetative communities in the province of Alberta are highly regarded by most resource managers for their ability to provide a wide variety of benefits. They are a classic example of multiple use land, providing summer range for livestock, prime habitat for many species of wildlife, productive watersheds and recreational areas. Despite the importance of these vegetation types there is little information on their ecology. The lack of information makes it very difficult to develop sustainable management prescriptions for multiple use.

The purpose of this guide was to develop a framework that would easily group the plant community types utilized by livestock in the Peace River Parkland subregion of the province. Plant communities are grouped into a hierarchical system based on ecology. These groupings include successional communities, which occur under natural succession, or disturbance such as fire, timber or grazing operations. All of the known relationships among communities are described within this guide in table format and/or schematically. Additionally, each known plant community is described in detail.

It is hoped this classification system can be used by field staff to assess the ecology and sustainable stocking rate of sites in order to develop management prescriptions on lands within each subregion. This guide supplements the work done by Beckingham and Archibald (1996) on the forested community types in the Boreal Mixedwood of northern Alberta. Their guide is a good description of the forested community types found within the subregions, but it does not include forage production values or grazing management information. It also does not provide a description of the native grassland and shrubland communities, which are utilized extensively by livestock in this subregion. This guide also builds on the Dry Mixedwood Guide (Willoughby et al. 2006) and has additional information about shrublands and grasslands which are located on the uplands and slopes of the region.

2.0 Climate

The location of the Peace River Parkland subregion is shown on Figure 1 and is best defined by the Natural Regions and Subregions of Alberta (Natural Regions Committee 2006) as:

"the smallest subregion in Alberta which accounts for only 0.5 percent of the province's total area. It is mapped as three small sub-areas in northwestern Alberta. The northernmost sub-area runs parallel to the Peace River from the town of Peace River to Dunvegan, and includes the south-facing steep Peace River valley slopes and glaciolacustrine plains on the north side of the river to a distance of about 20km back from the river break. The second sub-area includes a small level to gently undulating glaciolacustrine plain centered on Spirit River. The third and most southerly sub-area is an undulating to rolling glaciolacustrine plain and includes Grande Prairie. There are other known areas of Parkland, but they are generally too small to map at the provincial scale. The Dry Mixedwood subregion surrounds all three subareas. Elevations range from 300m along the Peace River near Peace River townsite to 800m in the Grande Prairie area. Almost all of the upland plains have been cultivated. The remaining upland forested areas are mainly aspen stands on Dark Gray Chernozems or Luvisols. The Peace River Parkland subregion is defined by parent material and soil criteria; climate is of secondary importance. The core conditions for this Natural Subregion are represented by the occurrence of Black Chernozemic and Solonchic soils; soil maps were used to delineate the current boundaries."

The Peace River Parkland subregion is similar in climate to the Dry Mixedwood subregion, which surrounds it, although it has milder winters and lower precipitation. The mean temperature of the warmest summer month is 15.9 oC and the mean temperature of the coldest winter month is -15.9 oC. Annual average precipitation is 450 mm

The vegetation cover of the Peace River Parkland is a complex of closed aspen stands, grasslands, shrublands and low lying wet areas.



Figure 1. Location of Peace River Parkland in Alberta

3.0 Approach and Methods of Classification

APPROACH: ECOLOGICAL CLASSIFICATION HIERARCHY AND METHODOLOGY

The system of classification in this guide was initially based on the community type approach of Mueggler (1988). Mueggler's system was chosen over the habitat type approach (Daubenmire 1952) or ecosystem association approach (Corns and Annas 1986) because it could classify plant communities regardless of their successional status. However, as the philosophy of rangeland health and proper functioning condition of a site evolved, it became apparent (through data analysis) that there was a need to also organize the various plant communities based on their response to disturbance (i.e. disturbance vs. natural succession) within an area under similar environmental influences.

It was determined that the ecosystem classification system developed by Corns and Annas (1986) and Beckingham and Archibald (1996) could accommodate this additional requirement. Thus, the new system developed for rangelands is a combination of Mueggler (1988) and Beckingham and Archibald (1996). Consequently, this guide adopts a similar ecological unit classification hierarchy (ecosite, ecosite phase, plant community). In an effort to first, link the hierarchical system with the historic rangeland system, and second, to create a provincially standardized rangeland approach, slightly different classification terminology was developed. The new terms ecological site and ecological site phase (replacing Beckingham and Archibald [1996] ecosite and ecosite phase terms respectively), provide subtle distinction to recognize the blending of the old systems and still be recognizable to readers familiar with the original terminology. See figure 2 for a flow chart of both classification and general presentation of information.

METHODS: PLANT COMMUNITY CLASSIFICATION

Sampling for this guide occurred within the Peace River Parkland subregion. This guide outlines the classification of 756 plots described in the Peace River Parkland. The procedure for inventory of plots followed the Range Survey Manual (1992) and uses the MF5 form. A plot consisted of a 10 m x 10 m macroplot and ten randomly selected 1 m x 1 m microplots to record the canopy cover of shrubs and ten nested 20 cm x 50 cm microplots to record the canopy cover of forbs and grass. For a description of the methodology for riparian plots done in the Mixedwood subregions, which includes some sites located in the Peace River Parkland, see (Thompson and Hansen 2003). The data for each site was analyzed using the multivariate analysis techniques of classification and ordination. Classification is the assignment of samples to classes or groups based on the similarity of species. A polythetic agglomerative approach was used to group the samples. This technique assigns each sample to a cluster, which has a single measure. It then agglomerates these clusters into a hierarchy of larger and larger clusters until finally a single cluster contains all the samples (Gauch 1982). Cluster analysis was performed in SAS and Euclidean distance was used as the Cluster Distance Measure and Ward's method was used in the Group Linkage Method. The groupings generated in cluster analysis were overlain on the site ordination to determine final groupings.

Ordination was used to find relationships among species, communities and environmental variables. Ordination reduces the dimensionality of the data to 1-3 most important axes to which environmental gradients can be assigned. The ordination technique used in the analysis of the data was DECORANA (Detrended Correspondence Analysis). DECORANA detrends and rescales the axes thereby reducing the arching and compression of axes problems associated with other ordination techniques (Reciprocal averaging, Principle Components Analysis). Once final groupings were determined on the ordination, specific environmental variables can be assigned to the variation outlined on the ordination axes.

Plant community type summaries were generated in SAS, by averaging plant species composition, range in composition, and percent constancy of occurrence, among vegetation inventory plots, which were part of a community type. Environmental data was subsequently sorted into the same plant community groupings to create the plant community descriptions outlined in this guide. The number of sample plots on which the description was based is also provided (e.g. n=16).

ECOLOGICALLY SUSTAINABLE STOCKING RATES

Ecologically sustainable stocking rates (ESSR) values are suggested for each plant community. These values reflect the maximum number of livestock (e.g. hectares (ha)/animal unit month (AUM)) that can be supported by the plant community given inherent biophysical constraints and the ecological goal of sustainable health and proper functioning of the plant community. When the ESSR is multiplied by the area (e.g. ha) of a plant community polygon, the result is termed ecologically sustainable carrying capacity (ESCC), and is expressed as AUMs. Often the ESCC must be adjusted for management factors (e.g. reduced livestock distribution), management goals (e.g. improve rangeland health, multiple use and values, etc.), drought conditions, and other natural phenomena impacting the site (e.g. forage quality, fire, pests, etc.). This adjusted/reduced value is the ecologically sustainable grazing capacity (ESGC). The ESGC values are not provided in the plant community guide because the necessary adjustments are determined by the rangeland resource manager.

Suggested ESSR values were determined from a combination of clipping studies, long-term rangeland reference area data, estimated production, and historical grazing experience. In order to sustain ecological health and function of the plant community, the ESSR was based on the allocation of 25 % of total production for forested plant community types, 50 % of total production for grass and shrub land types within the Peace River Parkland subregion and the forage requirements one animal unit (i.e. 455 kg of dry matter per month). The remaining biomass production (carry over), is allocated for the maintenance of ecological functions (e.g. nutrient cycling, viable diverse plant communities, hydrological function, and soil protection, etc.) and plant community services (forage production, habitat maintenance, etc.). The allocation of biomass production in this manner is well established, and supported, by the scientific community and the amount required, varies with Natural Subregion (Holechek et al. 1995).

RANGELAND HEALTH

Range Health is determined by comparing the functioning of ecological processes on an area (e.g. plant community polygon) of rangeland to a standard (i.e. reference range plant community (RPC)) described within an ecological site description. An ecological site is similar to the concept of range site, but a broader list of characteristics are described. An ecological site is defined by the Task Group on Unity and Concepts (1995) as, "a distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation". This guide can be used to determine the appropriate reference range plant community, within an ecological site, for a rangeland health assessment.

Rangeland health assessments are utilized to make a rapid determination of the ecological status of rangeland. We use range health terminology (healthy, healthy with problems, or unhealthy), to rank the ability of rangeland to perform certain ecological functions. These functions include: net primary production, maintenance of soil/site stability, capture and beneficial release of water, nutrient and energy cycling and plant species functional diversity. For a detailed description on how to assess rangeland health for various plant communities please refer to "Range Health Assessment for Grassland, Forest and Tame Pasture" (Adams et al. 2005).

An ecological status score [i.e. the integrity of the plant community composition compared to the reference plant community] has been added to each community type description. These values are based on what is currently known about how a reference plant community (RPC) responds to various kinds and levels of disturbance or successional processes. The values indicate how a particular plant community fits in the state and transition model relative to the RPC. If an experienced observer wishes to estimate the health of a plant community without completing a health form, (e.g. a small riparian area), these values can be used as a guide. Occasionally there are 2 options provided for the ecological status score. This was done for two reasons: 1) to express the range of divergence from the RPC possible for a particular plant community; or 2) to allow for different health forms to be used in communities with variable shrub or tree cover (e.g. on sites with high woody cover and/or an obvious LFH layer use the forest rangeland health form and the corresponding ecological status score; on sites dominated by herbaceous cover and/or an obvious herbaceous litter layer use the native grassland form). [Note: For riparian plant communities the riparian health assessment form should be used].

Range management objectives tend to favor the later stages of plant succession (late-seral to potential natural community (PNC) or good to excellent range condition) (Adams et al. 2005). Late seral plant communities tend to be superior in the efficient capture of solar energy, in cycling of organic matter and nutrients, in retaining moisture, in supporting wildlife habitat values and in providing the highest potential productivity for the site. In contrast, early seral stages represent plant communities with diminished ecological processes, which are less stable and more vulnerable to erosion and invasion by weeds and non-native species. They also have diminished resource values for livestock forage production, wildlife habitat and watershed protection (Adams et al. 2005). Healthy rangelands perform important ecological functions and provide a broader suite of goods and services. In most cases these late seral plant communities are used as reference range plant community (RPC), but sometimes management goals influence the choice of RPC (e.g. a cut block to be maintained as untimbered rangeland).

4.0 Correlation of Soils and Ecological Sites

5.0 Guidelines for Determining Ecological Sites

ORGANIZATION OF THE GUIDE

This guide is an expansion of the "Ecosites of Northern Alberta" guide (Beckingham and Archibald 1996). It contains new information and it is recommended that the reader have access to relevant information from both guides. The community types in this guide are closely related to the ecosites and ecosite phases outlined in "Ecosites of Northern Alberta" (Beckingham and Archibald 1996), and are similarly arranged (e.g. Table 1). Table 1 is a reproduction of Figure 11 in "Ecosites of Northern Alberta" with community types in this guide further separated into reference range plant communities, successional communities and harvesting and fire communities. The "Successional community types" or "Harvesting and Fire succession" categories outline the successional sequence the community types undergo with heavy grazing pressure, harvesting or fire disturbance.

Due to the crossover between vegetation communities located in the Peace River Parkland and the surrounding Dry Mixedwood subregion, many of the plant communities described for the Dry Mixedwood subregion (Willoughby et al. 2006) are also described here and have been cross referenced to help the reader.

The majority of ecological site and ecological site phase summary tables as well as the plant community descriptions are recorded in "Ecosites of Northern Alberta" (Beckingham and Archibald 1996). Any new ecological sites and ecological site phases reported in this guide are summarized before the community type descriptions. The bulk of this guide is community descriptions, which include information on the dominant plant species, canopy cover, environmental conditions, response to grazing, forage production and suggested ESSRs. When available, we have included plant community successional information to help us determine rangeland health and the successional relationships on an ecological site.

Generally, in both guides, ecological units within a subregion are classified by their position on the edatopic grid [a specific combination of soil moisture and soil nutrient regime]. The edatopic grid is a two-dimensional table with soil moisture regime on one axis and soil nutrient regime on the other. Soil moisture regime (SMR) is defined as the average amount of soil water available annually for evapotranspiration by vascular plants (Meidinger and Pojar 1991). The SMR uses nine classes to define the available soil moisture, which range from the driest (very xeric) to the wettest (hydric). Soil nutrient regime (SNR) is defined as the amount of essential soil nutrients that are available to vascular plants over a period of several years (Meidinger and Pojar 1991). SNR is broken down into five classes that range from A (very poor) to E (very rich). Generally ecological sites are named from low moisture/low nutrient to high moisture/high nutrient.

The unique combination of moisture and nutrients creates conditions for a particular ecological site within a subregion. For example a subxeric, medium nutrient regime site is characterized by the b [grass slopes(subxeric/medium)] ecological site. A manager can review the indicator plant species of the ecological site and range plant community types to see if the plant community in question fits the general descriptions.

The information in this guide is presented and named by:

1. Subregion/Ecological area = Peace River Parkland [PP]
2. Dominant cover type
 - A. Upland/Slope grasslands and shrubland plant community types
 - B. Moist shrubland community types
 - C. Grazing successional grassland and shrubland community types
 - D. Deciduous community types
 - E. Conifer/Mixedwood community types
 - F. Tame community types

NOTE: Each dominant cover type may overlay several ecological sites and ecological site phases.

3. Community types are presented and named by:

- a. Subregion/Ecological area and dominant cover type [e.g. PPA].
- b. Position on the edatopic grid. Generally, communities are named/numbered from low moisture /nutrient status to high moisture/nutrient status.

6.0 How to Use the Guide

IDENTIFYING PLANT COMMUNITY TYPES

There are two methods to identify plant community types in this guide. The first method uses a key within the dominant cover categories of native grass and shrubland, tame forage, deciduous, or mixedwood and conifer. The second method involves using soil moisture and nutrient information and indicator species to identify plant community types.

METHOD 1. Use dichotomous key within dominant cover categories

Step 1. Pick the appropriate category the community type is in within each subregion.

- a. The area has been cleared of trees, broken, and seeded down to tame forage species such as timothy or creeping red fescue; the community will be in the TAME PASTURE category.
- b. The area does not have an overstory tree canopy, has not been cleared and broken, and is dominated by native grass or shrub species; the community will fall under the NATIVE SHRUB and GRASSLANDS category.
- c. The DECIDUOUS category includes all plant communities that are dominated, [i.e. >70% of the overstory], by deciduous tree species (AW, Pb, Bw). Deciduous cutblocks are included here.
- d. Communities which have begun to undergo succession from a deciduous to a conifer overstory may fall into the MIXEDWOOD category. The following is a general rule of thumb. The site is a mixedwood community if the conifer and the deciduous overstories each range between 30-70% of the total overstory cover. For example a deciduous cover of 40% and a conifer cover of 60% is a mixedwood community. If in doubt, try to determine if the understory is responding more to a deciduous or coniferous influence [e.g. loss of production due to conifer shading]. Communities dominated [i.e. > 70% of the overstory] by conifers are classified in the CONIFER category.

Step 2. Turn to the appropriate section and work through the key provided to determine the closest matching community type for the site you are evaluating. At times, the community in question does not seem to match any of the known / reported types. When this happens, consider the following information in the detailed community type descriptions.

1. In the general description text.

a. The number of plots utilized to describe the community [n=number of plots]. The greater the number of plots [i.e. information available], the greater the level of confidence in the clarity and accuracy of the description including the suggested ESSR.

b. Information about where the community is found on the landscape, response to disturbance, and natural succession. Use this information together with your field experience to determine the likely hood of a similar situation occurring on the site in question.

2. Under Plant Composition heading.

a. The range of a plant species canopy cover. For example, a species with a range of 0-25% may not always be visible on the site, having 0% canopy cover or it may have up to 25% cover.

b. The consistency value. This indicates the percentage of the plots that the species was actually present. So if n=16 and consistency was 75% then the species occurred in 12 of the plots and not in 4 of them.

c. Note that tree species in the shrub LAYER are listed in the shrub section.

3. Try to use the other method to see if you can determine the plant community.

Step 3. This step is necessary only if you are completing a rangeland health assessment. In order to determine the health status of the site in question, you must decide the appropriate reference range plant community [RPC] to compare it to. Depending on the type of disturbance [grazing, timber operations, etc.] successional pathways may differ. The RPC would usually be the plant community that is at the start of the pathway. Management goals can influence the choice of RPC.

METHOD 2. Use edatope and indicator species (Figure 2)

Step 1. Pick the appropriate subregion

Step 2. Determine the appropriate ecological site based on position on the edatopic grid for the subregion. First decide soil moisture status, then soil nutrient status of the site in question. Use any available soils information to assist [e.g. AGRASID, or PLC]. [e.g. mesic/medium is the "f" low-bush cranberry ecological site.

Step 3. Look up the possible ecological site phases within the selected ecological site on Table 1 [e.g. has "f1" low-bush cranberry aspen, "f2" low-bush cranberry aspen-white spruce etc.

Step 4. Select the appropriate ecological site phase by first determining the dominant overstory [i.e the highest layer of vegetation which can be either a tree, shrub, or grass species]. [e.g. For a site dominated by aspen, the appropriate ecological site phase is "f1" low-bush cranberry aspen.]

Step 5. Select the appropriate community type. Within the selected ecological site phase, use indicator understory species to choose the closest matching community type. This information is shown in table 1. It is also detailed in the specific community type descriptions [i.e. species with the highest average canopy cover and consistency]. At times, the community in question does not seem to match any of the known / reported types. When this happens, consider the following information in the detailed community type descriptions.

1. In general description text.

a. The number of plots utilized to describe the community [n=number of plots]. The greater the number of plots [i.e. information available], the greater the level of confidence in the clarity and accuracy of the description including the suggested ESSR.

b. Information about where the community is found on the landscape, response to disturbance, and natural succession. Use this information together with your field experience to determine the likely hood of a similar situation occurring on the site in question.

2. Under Plant Composition heading.

a. The range of a plant species canopy cover. For example, a species with a range of 0-25% may not always be visible on the site, having 0% canopy cover or it may have up to 25% cover.

b. The consistency value. This indicates the percentage of the plots that the species was actually present. So if $n=16$ and consistency was 75% then the species occurred in 12 of the plots and not in 4 of them.

c. Note that tree species in the shrub LAYER are listed in the shrub section.

3. Try to use the other method to see if you can determine the plant community.

Step 6. This step is the same as step 4 in method 1 and is necessary only if you are completing a rangeland health assessment. In order to determine the health status of the site in question, you must decide the appropriate reference range plant community [RPC] to compare it to. Depending on the type of disturbance [grazing, timber operations, etc.] successional pathways may differ. The RPC would usually be the plant community that is at the start of the pathway. Management goals can influence the choice of RPC.

6.1 Key to Plant Community Types for Peace River Parkland subregion

1	Site cultivated and seeded to tame forage species	Tame Pastures
	Native trees, shrubs, forbs and grasses dominate the site	2
2	Native shrub or grass species dominate the site, few trees present	Native shrub and grasslands
	Trees dominate the site	3
3	Overstory consists of deciduous species (Aw, Bw, Pb)	Deciduous types
	Overstory dominated by conifer trees or a mixture of conifer and deciduous species	Conifer and Mixedwood types

Community Key to Tame Pastures

1	Tame forage stand dominated by tall productive species, grazing has not caused an increase of grazing resistant or weedy species	2
	Tame forage stand modified by overgrazing with grazing resistant species at least co-dominant in the plant community; or the site has aspen or shrub invasion	3
2	Subhygric sites dominated by productive, moisture loving tame forage species seeded on the site [e.g. reed canary grass, meadow foxtail or timothy]	PPF10 Reed canary grass-Meadow foxtail-S. brome-Timothy
	Mesic or submesic sites dominated by productive tame forage species suited to normal or dry moisture conditions[e.g. smooth brome, meadow brome, timothy, wheat grass, etc.]	4
3	Tame pasture invaded by aspen, balsam poplar or shrub species	5
	Species composition modified by moderate to heavy grazing	6
4	Submesic sites with wheat grass and creeping red fescue	PPF7 Wheat grass-Creeping red fescue-Timothy
	Mesic sites dominated by other tall, productive tame forage species [e.g. smooth brome, meadow brome, timothy, etc.]	PPF1 Brome-Timothy
5	Old tame pastures with Aspen and Balsam Poplar invasion	7
	Newer tame pastures with shrub invasion, little tree growth	8
6	Pasture moderately to heavily grazed; tall, productive and grazing resistant species co-dominate the site	PPF2 Creeping red fescue-Brome-Timothy
	Pasture heavily to very heavily grazed; grazing resistant and / or weedy species dominate the site	9
7	Submesic sites with hairy wild rye	PPF9 Aw-Pb/Rose/Hairy wild rye
	Mesic sites with strawberry	PPF6 Aw/Rose/Strawberry
8	Submesic sites dominated by hairy wild rye and rose	PPF8 Rose/Dandelion/Hairy wild rye
	Mesic to subhygric sites	12
9	Pasture heavily grazed; grazing resistant spp dominate the site, dandelion, strawberry common	10
	Pasture very heavily grazed; weedy invaders dominate the site	11
10	Mesic sites; dominated by grazing resistant species	PPF3 Creeping red fescue-Kentucky bluegrass/Dandelion
	Subhygric sites; dominated by grazing resistant species	PPF11 Brome-Creeping red fescue-K. bluegrass/Dandelion
11	Mesic or submesic sites dominated by strawwberry, dandelion, Canada thistle and other weedy species	PPF4 Strawberry-Dandelion-Weeds

Community Key to Tame Pastures

11	Subhygric sites dominated by foxtail barley, Canada thistle or other weedy species	PPF12 Foxtail barley/Weeds
12	Mesic sites with marsh reed grass and sedge	PPF5 Rose/Creeping red fescue-Sedge
	Subhygric sites with willow invading	PPF13 Willow/Timothy

Community Key to Native shrub and grasslands

1	Medium (mesic) to dry (xeric) upland or river valley slope site	2
	Riparian or wetland site (subhygric to hydric)	3
2	Grass or grass-like dominate site (< 20% cover from shrubs)	4
	Shrub dominated site	5
3	Grass or grass-like dominate (<20% cover from shrubs)	18
	Shrub dominated sites with willow or red osier dogwood	19
4	Dry (subxeric) site located on the slopes of major river valleys	6
	Mesic site associated with solonchic soils on upland areas or moister draws and flatter areas of slopes (benches, terraces and valley bottoms)	7
5	Dry to very dry, nutrient poor site	13
	Moister (mesic), richer site	14
6	Steep, south facing slopes (45 - 95% or 24 - 40 degrees), dominated by northern wheat grass, June grass and sedge	PPA3 Northern wheat grass-June grass-Sedge/Fringed sage
	Gentle to moderate slopes (5 - 45% or 3 - 24 degrees)	8
7	Upland site dominated by western porcupine grass or sedge	11
	Site on uplands or on lower slope positions and moist draws in river valleys dominated by purple oat grass, slender wheat grass, veiny meadow rue or Kentucky bluegrass	12
8	Light to moderately grazed sites with a significant component of western porcupine grass	9
	Moderate to very heavily grazed sites with very little western porcupine grass	10
9	Site has been altered through moderate grazing or other disturbance. Dominated by sedges. Western porcupine grass present but is not dominant	PPC1 Sedge-Wheat grass-June grass
	Light to moderately grazed sites dominated by western porcupine grass and sedge	PPA2 Western porcupine grass-Sedge
10	Site has been impacted by long term heavy to very heavy grazing pressure. Vegetation is dominated by low growing or grazing resistant species	PPC5 Dandelion/Sedge
	Site has been altered through moderate to heavy grazing or other disturbance	PPC2 June grass-Sedge/Pasture sagewort
11	Moderately grazed or disturbed site. Sedge dominates. High diversity of forbs. Northern bedstraw and yarrow are common	PPC6 Sedge-Low forb
	Upland site co-dominated by sedge and western porcupine grass. Intermediate oat grass is often present	PPA8 Sedge-Western porcupinegrass-Intermediate oatgrass
12	Moderate to heavily grazed site on uplands or on lower slope positions and moist draws in river valleys. Kentucky bluegrass dominates. Disturbance induced species present	PPC8 Kentucky bluegrass/Low Forb
	Upland sites or grassland-shrub transition zones in river valleys dominated by purple oat grass, slender wheat grass and Kentucky bluegrass	PPA15 Purple oat grass-Sedge-Intermediate oat grass

Community Key to Native shrub and grasslands

13	Dry (submesic) site with bearberry strongly dominant under saskatoon. Northern rice grass is also present	PPA4 Saskatoon/Bearberry/Northern rice grass
	Very dry (xeric), nutrient poor site dominated by juniper and rose	PPA1 Juniper-Rose
14	Site dominated by shrubs, native grasses and forbs	15
	Grazing impacted site dominated by shrubs and forbs. Kentucky bluegrass is a dominant or co-dominant grass	16
15	Site dominated by silverberry or codominated by silverberry and Saskatoon	PPA7 Silverberry-Saskatoon/Sedge
	Shrub encroached grassland. Relatively equal proportions of saskatoon, rose and snowberry with northern bedstraw, western porcupine grass and sedge occurring in significant amounts	PPA10 Shrub/Western porcupine grass-Sedge
16	Grazing impacted site with considerable amounts of grazing resistant species like Kentucky bluegrass, dandelion and strawberry. Shrub cover is dominated by saskatoon or rose	PPC4 Rose-Saskatoon/Kentucky bluegrass
	Grazing impacted site codominated by snowberry and a diverse mixture of forbs and grasses. Kentucky bluegrass is present but not dominant	PPC10 Snowberry/Kentucky bluegrass
18	Sites dominated by invasive species	PPC11 Kentucky bluegrass/Dandelion
	Sites dominated by native species	20
19	Willow dominated community types; sedge, marsh reed grass, horsetail dominate the herbaceous layer	24
	Red osier dogwood dominates or co-dominates with willow	25
20	Wet sites, dominated by sedge, baltic rush or Nuttalls saltgrass or marsh reed grass	21
	Very wet sites with standing water, cattails, bulrush, swamp horsetail present	22
21	Drier sites dominated by marsh reed grass	PPA14 Marsh reed grass meadow
	Fresh water sites dominated by beaked, water or awned sedge or saline seepages dominated by Nuttalls saltgrass or baltic rush	23
22	Swamp horsetail dominated	PPA13 Swamp horsetail
	Common great bulrush or cattail dominated site	PPA12 Bulrush-Cattail
23	Nutrient rich seepage areas dominated by sedge species	PPA11 Sedge meadow
	Saline seepage areas dominated by Nuttalls saltgrass or baltic rush	28
24	Heavily grazed sites; dominated by grazing resistant species in the herbaceous layer	PPB7 Willow/Kentucky bluegrass/Dandelion
	Lightly or moderately grazed sites, with the herbaceous layer dominated by native species	26
25	Scouler's willow dominates	PPB3 Scoulers willow-Red-osier dogwood
	Bebb willow dominates	PPB2 Bebb willow-Red-osier dogwood
26	Wetland sedge species dominates the herbaceous layer	PPB9 Willow/Sedge
	Horsetail dominates the herbaceous layer	PPB4 Willow/Horsetail/Marsh reed grass
28	Area very wet and dominated by baltic rush	PPA18 Rush meadow
	Area dominated by Nuttalls saltgrass	PPA17 Nuttalls salt grass

Community Key to Deciduous types

1	Sites where plant community succession is in the early stages (i.e. recently reset by logging or fire) Mid to late successional plant communities	PPD13 Deciduous cutblocks and unseeded clearings 2
2	Tree canopy dominated by Aspen	3
	Tree canopy dominated by Balsam poplar and paper birch	4
3	Dry sites with sandy soil texture, blueberry and bearberry dominate understory	5
	Sites with mesic or better moisture, blueberry or bearberry may be present but do not dominate the understory	6
4	Heavily grazed birch or balsam poplar dominated sites	7
	Moderately or lightly grazed birch or balsam poplar dominated sites	8
5	Sandy sites dominated by blueberry	PPD5 Aw/Blueberry
	Loamy sand sites dominated by dwarf bilberry, bearberry and mountain rice grass	PPD4 Aw/Dwarf bilberry-Bearberry/Mountain rice grass
6	Heavily grazed sites dominated by dandelion, Kentucky bluegrass or clover	PPD12 Aw-Pb/Dandelion/Kentucky bluegrass
	Moderately or lightly grazed sites dominated by shrubs	9
7	Smooth brome dominates understory	PPD15 Pb/Smooth brome
	Kentucky bluegrass and dandelion dominated	PPD14 Pb-Bw/Kentucky bluegrass
8	Willow dominates the understory	PPD16 Pb-Aw/Willow
	Riverine forests dominated by red osier dogwood in understory	PPD10 Pb-Aw/Red osier dogwood
9	Beaked hazelnut dominates the understory	PPD8 Aw-Pb/Hazelnut
	Sites dominated by other shrubs	10
10	Slope communities dominated by saskatoon	PPD7 Aw/Saskatoon
	Sites dominated by other shrubs	11
11	Buffaloberry dominates the understory	PPD6 Aw/Canada buffaloberry
	Rose, forb dominated understory	12
12	Tall forb dominated (fireweed, showy aster, yellow peavine, wild sarsaparilla)	PPD9 Aw/Rose/Tall forb
	Low forb dominated (bunchberry, twinflower, strawberry, wintergreen)	PPD11 Aw/Rose/Low forb

Community Key to Conifer and Mixedwood types

1	Wet, nutrient poor sites dominated by black spruce, larch and Labrador tea present	PPE3 Sb-Lt/Labrador tea/Moss
	Moist, mesic or dry sandy sites dominated by white spruce, aspen, balsam poplar or jack pine	2
2	Dry, sandy sites dominated by jack pine; bearberry dominant in understory	PPE1 Pj-Aw/Bearberry

Community Key to Conifer and Mixedwood types

2	Mesic or subhygric sites dominated by spruce, aspen or balsam poplar	3
3	White spruce dominated (ie greater than or equal to 70% spruce overstory cover or deciduous species with less than 30% cover), or the understory is strongly influenced by conifer shading	4
	Mixedwood types dominated by a mixture of deciduous and conifer trees; a structurally diverse understory present	5
4	Moss dominates the understory, little shrub cover	PPE5 Sw/Moss
	Low bush cranberry predominant or present in the understory	PPE4 Sw-Aw/Low bush cranberry
5	Typical mesic site, dominated by aspen and spruce, with rose and marsh reed grass in the understory	PPE2 Aw-Sw/Rose/Marsh reed grass
	Balsam poplar present, moister, richer sites; understory dominated by red osier dogwood or horsetail	6
6	Horsetail dominates understory	PPE7 Sw/Horsetail
	Red osier dogwood dominates understory	PPE6 Sw-Pb/Red-osier dogwood

7.0 Results

This guide represents the analysis of 756 plots described in the Peace River Parkland subregion. These 756 plots represent 66 plant community types. These are split into:

- A. Upland/Slope grasslands and shrubland plant community types (16 types)
- B. Moist shrubland community types (9 types)
- C. Grazing successional grassland and shrubland community types (8 types)
- D. Deciduous community types (13 types)
- E. Conifer/Mixedwood community types (7 types)
- F. Tame community types (13 types)

The dominant plant species, canopy cover, environmental conditions, response to grazing, forage production and ecologically sustainable stocking rate are outlined for each type.

8.0 General Ecological Site Descriptions

NATIVE GRASS AND SHRUB COMMUNITIES (Plant community codes A and B)(Grazing modified code C)

Aspen Parkland-like vegetation can develop where site conditions or drought conditions occur in combination with the driest climatic conditions (Strong 1992). The Grande Prairie area is an example where a number of these conditions occur. It is within this area that a number of native upland grassland community types have been described. On steep, south-facing slopes of the Smoky, Wapiti and Peace Rivers with subxeric moisture regimes and medium nutrient regimes the Western porcupine grass-Sedge/Fringed sage and Northern wheatgrass/Fringed sage community types are common. The Sedge-Western porcupine grass-Intermediate oatgrass community type is found on more upland sites with mesic moisture and rich nutrient regimes. This community appears to be similar to the Sedge-Intermediate oatgrass-Western porcupine grass community described by Wilkinson and Johnston (1983) on Solonchic soils in the Grande Prairie area. Adams (1981) also found that the Western porcupine grass, Sedge and Northern wheatgrass dominated communities of the Peace River slopes were often associated with Dark Gray Solonch and Solonchic Gray Luvisols. It appears that the Sedge-Slender wheatgrass-Western porcupine grass, Sedge-Kentucky bluegrass-Intermediate oatgrass and Kentucky bluegrass-Sedge dominated communities are all grazing disclimaxes of the Sedge-Western porcupine grass-Intermediate oatgrass community described in this guide and in Wilkinson and Johnston's (1983) study.

On coarse textured, sandy soil, with submesic moisture and poor nutrient regimes which lack tree cover is found the Saskatoon/Bearberry/Northern ricegrass community type. These community types are usually found in association with Jack pine dominated community types.

Wetter (subhydric/rich) sites are associated with sedge and marsh reedgrass dominated meadows. Sedge species are usually associated with the areas of free standing water and marsh reedgrass dominates the drier edges. Willow will invade into these meadows to form the Willow/Sedge and Willow/Marsh reedgrass community types. On wetter saline seepage areas baltic rush and Nuttalls saltgrass community types tend to dominate.

DECIDUOUS FOREST COMMUNITIES (Plant community code D)

The deciduous community types described in the Peace River Parkland subregion are very similar to the Dry Mixedwood subregion. Consequently, the 16 deciduous community types described in this guide are also described in the Dry Mixedwood subregion guide.

The Aw/Blueberry type is found on well-drained, sandy sites in association with jack pine stands and the Aw/Dwarf bilberry/Bearberry/Mountain ricegrass community is found on slightly moister sites with loamy sand textures. The Aspen/Rose(Aw/Rose/Tall forb, Aw/Rose/Low forb, Aw/Rose-Hazelnut, Aw/Buffaloberry-Rose and Aw/Saskatoon-Rose) site types are moderately well-drained, with mesic moisture and mesotrophic nutrient regimes. Beckingham (1994), felt the Aspen/Buffaloberry type occurred on somewhat nutrient-poor soils. The Aspen/Rose/Tall and Low forb community types occupy similar site conditions. The difference between these two types may be related to grazing pressure. The Aspen/Rose/Low forb type has a low total cover of forbs (48%), whereas the Aspen/Rose/Tall forb type has a high total cover of forbs (81%). The increased grazing pressure in the Aspen/Rose/Low forb type may have caused a reduction in forb cover. The Aspen/Hazelnut type is found on mesic, well-drained sites. The presence of hazelnut appears to be indicative of warmer sites (Beckingham 1994) and have some fire history (Downing and Karpuk 1992).

A number of balsam poplar-dominated community types were described. These communities are typical of forests situated along the flood plains of rivers and seepage areas in lower slope positions. The Balsam poplar-Aspen/Horsetail and Balsam poplar-Aspen/Willow type are found on moist poorly drained sites adjacent to some willow shrublands.

CONIFEROUS AND MIXEDWOOD FORESTS (Plant community code E)

Conifer and mixedwood dominated plant communities are not common in the Peace River Parkland subregion. The drier site conditions and high frequency of disturbance (fire, cultivation) in this subregion tends to limit the growth of conifer trees.

Currently, only seven mixedwood and conifer plant communities have been described in the Peace River Parkland. On coarse textured sandy soils Jack pine tends to dominate the forest canopy to form the Jack pine, aspen dominated community types.

The mesic/medium sites will generally succeed to white spruce (Sw) to form the Sw/Moss and mixedwood communities of aspen and spruce (Aw-Sw/Rose/Marsh reed grass, Sw-Aw/Low bush cranberry). These communities represent the reference ecological site for the Boreal Mixedwood subregion (Beckingham and Archibald 1996). In the absence of disturbance on moister sites with subhygric moisture and rich nutrient regimes white spruce will invade into balsam poplar (Pb), red osier dogwood and horsetail dominated community types to form the Sw-Pb/Red osier dogwood and Sw/Horsetail dominated communities.

Black spruce and larch communities generally dominate on wetter sites with subhygric to subhydric moisture regimes and poor to medium nutrient regimes to form Sb-Lt/Labrador tea/Moss community types. Larch is more tolerant of excessive moisture and is indicative of an enriched nutrient status, while black spruce is typical in areas of stagnating groundwater with poor nutrient status (Hay et al. 1985). Generally, these community types are considered non-use for domestic livestock. Beckingham and Archibald (1996), provide a good description on how the conifer and mixedwood community types are arranged in the landscape.

TAME FORAGE COMMUNITIES (Plant community code F) (Cleared areas that have been broken and seeded to tame forage)

Throughout the Peace Parkland subregion there are sites that have been deforested, broken, and seeded to tame forage. Usually these areas are mesic and moderately well to well drained with good nutrient levels. Because most of these tame forage stands are established on similar sites, the most influential factors affecting plant species composition are stand establishment and grazing regime.

Stand establishment is important because it determines what the initial plant species composition is going to be. Seed bed preparation and the type of seed sown are the two most important factors influencing stand establishment. Seed bed preparation is important because it helps to determine how well the sown seed germinates and establishes. If the seed bed is not well prepared, the tame forage species may have reduced seedling vigour and/or density allowing native or weedy species to become a dominant component of the plant community.

After the stand is established, the grazing regime applied to the stand will influence the plant species composition. Generally, a light to moderate level of grazing allows the stand to maintain itself while sustained heavy grazing causes the stand to degrade. Damage to a stand due to overgrazing occurs more readily while the stand is establishing than it does when the stand is established. This is because the forage plants in an establishing stand have not had time to develop energy reserves or substantial root systems and are therefore more susceptible to grazing induced stress.

Figure 3 is a successional diagram for tame pastures in the Peace River Parkland and Dry Mixedwood subregion. Tame pasture communities are organized horizontally by moisture gradient [e.g. dry (submesic) to moist (subhygric)] and vertically by successional factors like the grazing disturbance gradient [e.g. moderate or very heavily grazed] or stand establishment. A light to moderate grazing regime will normally maintain a forage stand similar to what was seeded on the site. These stands are generally the most productive and provide the best grazing opportunities for livestock. In figure 3, these plant communities are indicated by the bolded boxes and represent various seed mixes sown on submesic to subhygric sites (not just those species in the plant community name). They are considered to be in the healthy category for range health.

The plant communities represented by the boxes above the bolded boxes may be the result of a number of different factors. For example, when the site is under-grazed, the stand becomes dominated by species that are the most competitive in the absence of grazing disturbance. In this case, trees and shrubs growth is unchecked and they can out-compete seeded plants for light and other resources. Poor forage establishment is another factor that can result in stands that are dominated by native or weedy species. Although shrubs and trees can occur on all tame pasture community types, the extent to which invasion occurs is influenced by site preparation, forage establishment, moisture conditions, age of stand and grazing history.

Plant community changes which occur under heavy grazing are dependent on the grazing history (level of use, season of use and duration of the grazing regime). Overgrazed community types [plant communities at bottom of Figure 3] develop over a long period of repeated overgrazing. If weedy species such as tall buttercup or Canada thistle, become established on overgrazed sites, they can quickly become a dominant species.

Ecological classification of Alberta

The Rangeland Ecological Site Description database is based on the ecological classification system of Alberta. This hierarchical classification structure for Alberta is outlined below starting at the larger scale natural subregions map and going down in scale to the plant community type.

Natural subregions → Edatopic grid → Ecological site (Ecosite) → Ecological site phase → Community type

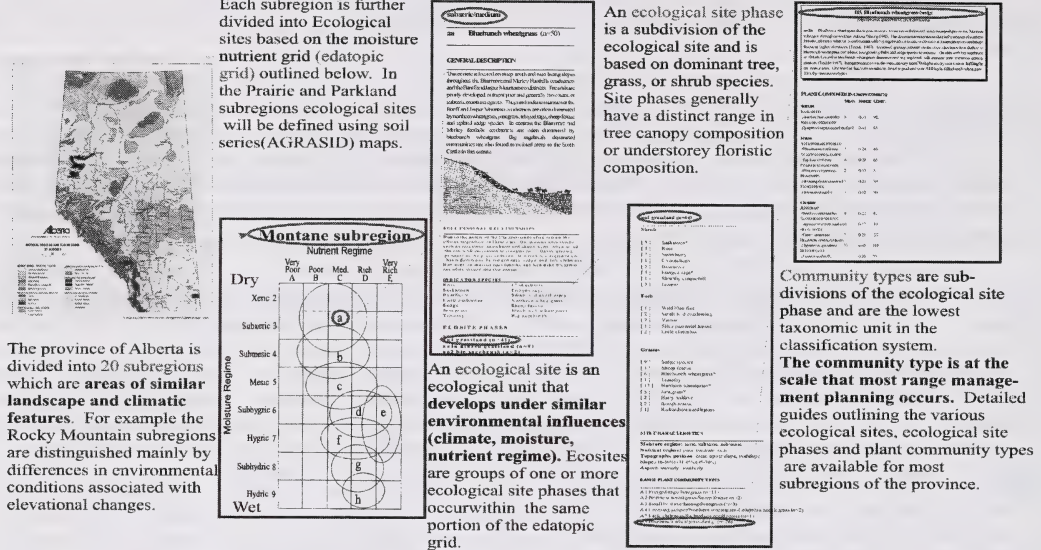


Figure 2. Classification hierarchy for the Province of Alberta.

SUCCESSIONAL CHANGES	SUBMESIC SITES	MESIC SITES	SUBHYGRIC SITES	SUCCESSION FACTORS
tree species become dominant	Aw-Pb / Rose / H. wild rye F9	Aw / Rose / Strawberry F6		↑
some woody regrowth and native herbaceous species reversion to native plants	Rose / Dandelion / H. wild rye F8	Rose / C. red fescue- Sedge F5	Willow / Timothy F13	↑
dominated by the tall, productive species originally seeded [i.e. desirable species]	Wheat grass / Creeping red fescue F7	Brome / Timothy F1	R. canary grass-Meadow foxtail-Timothy-Brome F10	light to moderately grazed
decline in desirable species with some grazing induced species present		Brome - Timothy - C. red fescue F2	Brome - C. red fescue- K. bluegrass / Dandelion F11	moderately to heavily grazed
dominated by grazing induced species with some weedy species		C. red fescue - K. bluegrass / Dandelion F3		heavily grazed
dominated by grazing induced and/or weedy species	Strawberry-Dandelion/Weeds F4	Strawberry-Dandelion/Weeds F4	Foxtail barley/Weeds F12	very heavily grazed

Figure 3. Successional sequences of tame pasture communities on 3 moisture regimes in the Peace River Parkland subregion.

		EDATOPIC GRID				
NUTRIENT REGIME	MOISTURE REGIME	VERY POOR	POOR	MEDIUM	RICH	VERY RICH
		A	B	C	D	E
VERY XERIC	1		a			
XERIC	2			b		
SUBXERIC	3					
SUBMESIC	4		c	d		
MESIC	5			e	f	
SUBHYGRIC	6	hh		i	g	
HYGRIC	7				h	
SUBHYDRIC	8					j
HYDRIC	9				k	

Ecological sites for the Peace Parkland subregion

a juniper

(xeric/poor)

b grassland slopes

(subxeric/medium)

c northern ricegrass

(submesic/poor)

d blueberry

(submesic/medium)

e upland solonetzic/grass slopes

(mesic/medium-rich)

f low bush cranberry

(mesic/medium)

g dogwood

(subhygric/rich)

h horsetail

(hygric/rich)

hh bog

(subhygric/very poor)

i solonetzic

(subhygric)

j rich fen

(subhydric/rich)

k marsh

(hydric/rich)

Figure 4. Edatopic grid and ecological sites for the Peace River Parkland subregion.

9.1 Table 1: Range Plant Community Table					
Ecological Site	Ecosite Phase	Reference Range Plant Community	Successional Community Types	Modified Community Types	Harvesting Succession
a juniper (xeric/poor)	a1 juniper	PPA1 Juniper-Rose			
b grassland slopes (subxeric/medium)	b1 western porcupine grass	PPA2 Western porcupine grass-Sedge	PPC1 Sedge-Wheat grass-June grass		
			PPC2 June grass-Sedge/Pasture sagewort		
			PPC5 Dandelion/Sedge		
	b2 northern wheat grass	PPA3 Northern wheat grass-June grass-Sedge/Fringed sage			
c northern rice grass (submesic/poor)	c1 northern rice grass-bearberry	PPA4 Saskatoon/Bearberry/Nort rice grass			
d blueberry (submesic/medium)	d1 blueberry Pj-Aw	PPE1 Pj-Aw/Bearberry			
	d2 blueberry Aw (Bw)	PPD4 Aw/Dwarf bilberry-Bearberry/Mounta rice grass			
		PPD5 Aw/Blueberry			
	d3 blueberry Tame	PPF7 Wheat grass-Creeping red fescue-Timothy		PPF8 Rose/Dandelion/Hairy wild rye	
				PPF9 Aw-Pb/Rose/Hairy wild rye	
e upland solonchic/grassland slope (mesic)	e1 western porcupine grass	PPA8 Sedge-Western porcupinegrass-Intermediate oatgrass	PPC6 Sedge-Low forb		
			PPC8 Kentucky bluegrass/Low Forb		
	e2 intermediate oat grass-slender wheat grass	PPA15 Purple oat grass-Sedge-Intermediate oat grass			
		PPA16 Veiny meadow rue/Slender wheat grass-F. brome			
	e3 shrubland	PPA10 Shrub/Western porcupine grass-Sedge			
		PPA5 Snowberry-Saskatoon/Sec	PPC10 Snowberry/Kentucky bluegrass		
		PPA6 Saskatoon-Rose/Sedge	PPC4 Rose-Saskatoon/Kentucky bluegrass		
		PPA7 Silverberry-Saskatoon/Sec			
	e4 salt grass	PPA9 Sedge-Salt grass			
f low-bush cranberry (mesic/medium)	f1 low-bush cranberry Aw	PPD16 Pb-Aw/Willow			
		PPD6 Aw/Canada buffaloberry			
		PPD7 Aw/Saskatoon			
		PPD8 Aw-Pb/Hazelnut			

9.1 Table 1: Range Plant Community Table

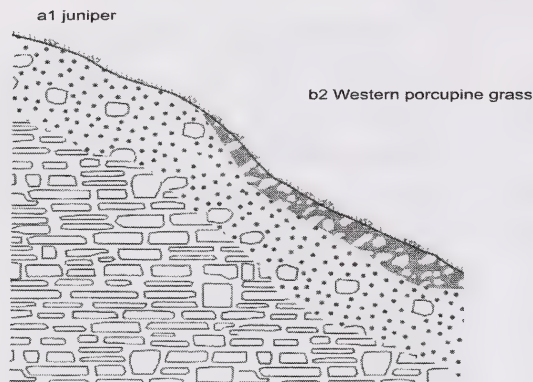
Ecological Site	Ecosite Phase	Reference Range Plant Community	Successional Community Types	Modified Community Types	Harvesting Succession
f low-bush cranberry (mesic/medium)	f1 low-bush cranberry Aw	PPD9 Aw/Rose/Tall forb	PPD11 Aw/Rose/Low forb PPD12 Aw-Pb/Dandelion/Kentucky bluegrass		
	f2 low-bush cranberry Aw-Sw	PPE2 Aw-Sw/Rose/Marsh reed grass			
		PPE4 Sw-Aw/Low bush cranberry			
	f3 low-bush cranberry Sw	PPE5 Sw/Moss			
	f4 low-bush cranberry Tame	PPF1 Brome-Timothy	PPF2 Creeping red fescue-Brome-Timothy	PPF5 Rose/Creeping red fescue-Sedge	
			PPF3 Creeping red fescue-Kentucky bluegrass/Dandelion	PPF6 Aw/Rose/Strawberry	
			PPF4 Strawberry-Dandelion-Weeds		
g dogwood (subhygric/rich)	g1 shrubland	PPB1 Red-osier dogwood-Shining willow			
		PPB2 Bebb willow-Red-osier dogwood			
		PPB3 Scoulers willow-Red-osier dogwood			
	g2 dogwood pb-aw	PPD10 Pb-Aw/Red osier dogwood	PPD14 Pb-Bw/Kentucky bluegrass		
			PPD15 Pb/Smooth brome		
	g3 dogwood Pb-Sw	PPE6 Sw-Pb/Red-osier dogwood			
	g4 dogwood Tame	PPF10 Reed canary grass-Meadow foxtail-S. brome-Timothy	PPF11 Brome-Creeping red fescue-K. bluegrass/Dandelion PPF12 Foxtail barley/Weeds	PPF13 Willow/Timothy	
h horsetail (hygric/rich)	h1 shrubland	PPB4 Willow/Horsetail/Marsh reed grass			
		PPB5 Bebb willow/Marsh reed grass			
	h2 horsetail Sw	PPE7 Sw/Horsetail			
hh bog (subhygric/very poor)	hh1 treed bog	PPE3 Sb-Lt/Labrador tea/Moss			
i solonetzic (subhygric)	i1 rush	PPA17 Nuttalls salt grass PPA18 Rush meadow			
j rich fen (subhygric/rich)	j1 graminoid rich fen	PPA11 Sedge meadow			
		PPA14 Marsh reed grass meadow	PPC11 Kentucky bluegrass/Dandelion		
	j2 shrubby rich fen	PPB6 Willow/Marsh reed grass	PPB8 Willow/Marsh reed grass-Kentucky bluegrass		
		PPB7 Willow/Kentucky bluegrass/Dandelion			
		PPB9 Willow/Sedge			
k marsh (hydric/rich)	k1 marsh	PPA12 Bulrush-Cattail			
		PPA13 Swamp horsetail			

10.0 a juniper (xeric/poor) (n=2)

Natural Subregion: PEACE RIVER PARKLAND

General Description

This ecological site has dry site conditions and is often associated with coarse textured fluvial or eolian over lacustrine parent materials. These sites can occupy steep upper slope positions on the major river valleys or may occupy small coarse textured openings in the forest. These sites tend to have little forb and grass cover and are dominated by juniper, snowberry and silverberry.



Successional Relationships

Due to the nature of the site there is often little growth of trees and the juniper phase often remains the climax vegetation.

Indicator Species

slender wheat grass	sedge species
silverberry	creeping juniper
prickly rose	Canada buffaloberry
Snowberry (buckbrush)	

Site Characteristics

Moisture Regime: XERIC()
Nutrient Regime: SUBMESOTROPHIC()
Topographic Position: Crest(), Upper slope()
Slope: 6 - 9(), 10 - 15(), 16 - 30()
Aspect: Variable()

Soil Characteristics

Organic Thickness:
Humus Form:
Surface Texture: S(), SL()
Effective Texture: S()
Depth to Mottles/Gley: Not Applicable()
Soil Drainage: Well drained()
Parent Material:
Soil Subgroup:

Forage Production Summary (kg/ha)

(Refer to the Plant Community for detailed Stocking Rate Information)

	Forage Production (kg/ha)			Total	Stocking Rate ha/aum(aum/ac)
	Grass	Forb	Shrub		
a juniper (xeric/poor)					
a1 juniper				450	4.05(0.10)
PPA1 Juniper-Rose				450	4.05(0.10)

10.1 a1 juniper (n=2)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: juniper (xeric/poor)

Characteristic Species

Shrub

- [48] creeping juniper
- [41] prickly rose
- [16] silverberry
- [16] Snowberry (buckbrush)
- [6] Canada buffaloberry

Forb

- [4] Undifferentiated Erigeron
- [4] Undifferentiated milk vetch
- [3] three-flowered avens
- [2] northern bedstraw
- [2] low goldenrod

Grass

- [5] sedge species
- [2] beautiful sedge
- [1] slender wheat grass

*Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: XERIC()

Nutrient Regime: SUBMESOTROPHIC()

Topographic Position:

Slope:

Aspect:

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage: Well drained()

Parent Material:

Soil Subgroup:

Soil Type:

Plant Community Types (n)

PPA1 Juniper-Rose (2)

10.1.1

PPA1. Juniper-Rose

(*Juniperus horizontalis*-*Rosa acicularis*)

n=2 A shrub community found on nutrient poor, dry soils. Creeping juniper and prickly rose are codominant. Silverberry and buckbrush are generally less abundant. Forbs are found in low cover amounts, and apart from sedge, graminoids are also found in low quantities.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: a juniper (xeric/poor)

Ecosite Phase: a1 juniper

Plant Composition		Canopy Cover (%)		Environmental Variables				
		Mean	Range	Const.				
Shrub					Moisture Regime: XERIC()			
CANADA BUFFALOBERRY (<i>Shepherdia canadensis</i>)	6	1-10	100	Nutrient Regime: SUBMESOTROPHIC()				
CREEPING JUNIPER (<i>Juniperus horizontalis</i>)	48	15-80	100	Elevation (range): (-) M				
PRICKLY ROSE (<i>Rosa acicularis</i>)	41	7-75	100	Slope:				
SILVERBERRY (<i>Elaeagnus commutata</i>)	16	2-30	100	Aspect:				
SNOWBERRY (BUCKBRUSH) (<i>Symphoricarpos occidentalis</i>)	16	7-25	100	Soil Drainage: Well drained()				
Forb					Soil Subgroup:			
EARLY BLUE VIOLET (<i>Viola adunca</i>)	1	1-2	100	Soil Series:				
FIELD MOUSE-EAR CHICKWEED (<i>Cerastium arvense</i>)	1	1-1	100	Soil Correlation:				
LOW GOLDENROD (<i>Solidago missouriensis</i>)	2	0-3	50	Range Site Category:				
NORTHERN BEDSTRAW (<i>Galium boreale</i>)	2	1-3	100	Ecological Status Score: 24				
PASTURE SAGEWORT (<i>Artemisia frigida</i>)	1	1-1	100	Soil Exposure				
PRAIRIE CROCUS (<i>Anemone patens</i>)	1	1-1	100	Mean				
THREE-FLOWERED AVENS (<i>Geum triflorum</i>)	3	1-5	100	Min				
UNDIFFERENTIATED ERIGERON (<i>Erigeron</i>)	4	2-5	100	Max				
UNDIFFERENTIATED MILK VETCH (<i>Astragalus</i>)	4	0-8	50	%				
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	1	0-1	50	Comment:				
Grass					Forage Production (kg/ha) n=			
BEAUTIFUL SEDGE (<i>Carex concinna</i>)	2	0-3	50	Mean				
SEDGE SPECIES (<i>Carex spp.</i>)	5	1-7	100	Min				
SLENDER WHEAT GRASS (<i>Agropyron trachycaulum</i>)	1	1-2	100	Max				
					Forb			
					Grass			
					Shrub			
					Tree			
					Undifferentiated	450		
					Total	450	0	0
					Ecologically Sustainable Stocking Rate			
					4.05 (8.09-4.05) HA/AUM or 0.10 (0.05-0.10) AUM/AC			

11.0 b grassland slopes (subxeric/medium) (n=89)

Natural Subregion: PEACE RIVER PARKLAND

General Description

This ecosite is associated with the south and west facing slopes of major river valleys like those of the Peace, Smoky and Wapiti rivers and their tributaries. Sites are dry with rapidly drained, nutrient rich soils. The parent materials are generally glacio lacustrine, morainal, colluvial and fluvial in origin. The high insolation and dry site conditions favour the growth of grassland species. These include western porcupine grass, northern wheat grass, June grass, sedge and pasture sagewort. In the moister draws aspen and shrubs (buckbrush, Saskatoon, chokecherry) are quite common.



Taken and adapted from: Range ecology and the impact of livestock grazing on the Peace River slopes, Alberta: Adams 1981.

Successional Relationships

Due to the nature of the site, grasslands often remain the climax vegetation on these sites. In the moister draws and lower slope positions shrubs and then aspen and spruce can succeed onto these grasslands. Frequent fire will often control the succession to trees in the moist areas. Heavy grazing pressure on the grasslands can often lead to a degraded site that is dominated by pasture sagewort, upland sedge and June grass, with Kentucky blue grass in the moister draws and lower slopes. Refer to the "e - solonchic uplands/grassland slopes" ecosite for the plant communities found in these moister areas.

Indicator Species

northern wheat grass	western wheat grass
slender wheat grass	saskatoon
pasture sagewort	blunt sedge
June grass	brittle prickly-pear
western porcupine grass	green needle grass
Snowberry (buckbrush)	

Site Characteristics

Moisture Regime: XERIC(), SUBXERIC(), SUBMESIC()

Nutrient Regime: SUBMESOTROPHIC(), MESOTROPHIC()

Topographic Position: Crest(), Lower slope(), Midslope(), Upper slope(), Toe()

Slope: 3 - 5(), 6 - 9(), 10 - 15(), 16 - 30(), 31 - 45(), 46 - 70(), 71 - 100()

Aspect: Level(), Easterly(), Southerly(), Westerly()

Soil Characteristics

Organic Thickness: 0 - 5 cm()

Humus Form: MULL()

Surface Texture: L()

Effective Texture: LS(), SL()

Depth to Mottles/Gley: None()

Soil Drainage: Rapidly drained(), Well drained()

Parent Material: F(), GL()

Soil Subgroup:

Forage Production Summary (kg/ha)

(Refer to the Plant Community for detailed Stocking Rate Information)

b grassland slopes (subxeric/medium)	Forage Production (kg/ha)				Stocking Rate ha/aum(aum/ac)
	Grass	Forb	Shrub	Total	
b1 western porcupine grass	989	254	5	737	2.11(0.19)
PPA2 Western porcupine grass-Sedge	989	254	5	1248	1.01(0.40)
PPC1 Sedge-Wheat grass-June grass				750	1.35(0.30)

Forage Production Summary (kg/ha)

(Refer to the Plant Community for detailed Stocking Rate Information)

	Forage Production (kg/ha)				Stocking Rate ha/aum(aum/ac)
	Grass	Forb	Shrub	Total	
b grassland slopes (subxeric/medium)					
b1 western porcupine grass	989	254	5	737	2.11(0.19)
PPC2 June grass-Sedge/Pasture sagewort				550	2.02(0.20)
PPC5 Dandelion/Sedge				400	4.05(0.10)
b2 northern wheat grass	600	183	309	1092	1.35(0.30)
PPA3 Northern wheat grass-June grass-Sedge/Fringed sage	600	183	309	1092	1.35(0.30)

11.1 **b1** western porcupine grass (n=61)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: grassland slopes (subxeric/medium)

Characteristic Species

Shrub

- [1] saskatoon
- [1] Snowberry (buckbrush)

Forb

- [5] pasture sagewort
- [3] prairie crocus
- [1] small-leaved everlasting
- [1] brittle prickly-pear

Grass

- [15] sedge species
- [7] western porcupine grass
- [5] June grass
- [3] green needle grass
- [3] western wheat grass
- [3] northern wheat grass

* Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: SUBXERIC(), SUBMESIC()

Nutrient Regime: SUBMESOTROPHIC(), MESOTROPHIC()

Topographic Position: Lower slope(), Midslope(), Toe()

Slope: 3 - 5(), 6 - 9(), 10 - 15(), 16 - 30(), 31 - 45()

Aspect: Southerly(), Westerly()

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage: Well drained()

Parent Material:

Soil Subgroup:

Soil Type:

Plant Community Types (n)

PPA2 Western porcupine grass-Sedge (19)

PPC1 Sedge-Wheat grass-June grass (15)

PPC2 June grass-Sedge/Pasture sagewort (10)

PPC5 Dandelion/Sedge (17)

11.1.1

PPA2. Western porcupine grass-Sedge

(*Stipa curtisetia*-*Carex* spp.)

n=19 This community is similar to DMA5-Western porcupine grass-Sedge/Fringed sage in the Dry Mixedwood Guide (Willoughby et al. 2006). It is characteristic of the submesic, gentle to moderate slopes (5-45% or 3-24 degrees) and hillcrests of the river slopes throughout the Peace region (S1 and S4 slope site positions from Adams 1981). Wilkinson and Johnson (1983) described western porcupine grass-sedge/pasture sagewort communities on steeper south facing slopes. The site characteristics and species composition make this community type attractive to livestock and as such can be degraded through inappropriate management. Adams (1981) found this community type as being a major source of spring forage for livestock in the Peace River area. He found that with increased grazing pressure sedge, June grass, northern and western wheat grass would increase as western porcupine grass declines. It appears that heavy grazing of this community type causes western porcupine grass to decline and allows sedge and wheat grass species to increase forming the sedge-northern wheat grass/June grass dominated community. Continued heavy grazing appears to allow Kentucky bluegrass to invade into the moister draws, lower slope positions and flatter areas. In the absence of disturbance, litter accumulation results in a moister site, which favours the growth of green needle grass and shrubs. The Western porcupine grass-Sedge community has very low shrub cover and sedge and western porcupine grass moderately codominate. June grass, pasture sagewort and prairie crocus are usually common. A diversity of forb and grass species occur but are usually only in small amounts.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: b grassland slopes (subxeric/medium)

Ecosite Phase: b1 western porcupine grass

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Shrub				Moisture Regime: SUBXERIC(), SUBMESIC()
PRICKLY ROSE (<i>Rosa acicularis</i>)	1	0-5	32	Nutrient Regime: SUBMESOTROPHIC(), MESOTROPHIC()
SASKATOON (<i>Amelanchier alnifolia</i>)	1	0-11	26	Elevation (range): (-) M
SNOWBERRY (BUCKBRUSH) (<i>Symphoricarpos occidentalis</i>)	2	0-13	53	Slope: 6 - 9(), 10 - 15(), 16 - 30(), 31 - 45()
Forb				Aspect: Southerly(), Westerly()
BASTARD TOADFLAX (<i>Comandra umbellata</i>)	1	0-6	58	Soil Drainage: Well drained()
BRITTLE PRICKLY-PEAR (<i>Opuntia fragilis</i>)	1	0-2	26	Soil Subgroup:
LOW GOLDENROD (<i>Solidago missouriensis</i>)	1	0-3	37	Soil Series:
PASTURE SAGEWORT (<i>Artemisia frigida</i>)	7	0-30	79	Soil Correlation:
PRAIRIE CROCUS (<i>Anemone patens</i>)	6	0-23	79	Range Site Category:
SMALL-LEAVED EVERLASTING (<i>Antennaria parvifolia</i>)	1	0-4	53	Ecological Status Score: 24
Grass				Soil Exposure
GREEN NEEDLE GRASS (<i>Stipa viridula</i>)	3	0-30	47	Mean
JUNE GRASS (<i>Koeleria macrantha</i>)	6	0-17	95	Min
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)	1	0-8	16	Max
NORTHERN WHEAT GRASS (<i>Agropyron dasystachyum</i>)	2	0-10	32	
SEDGE SPECIES (<i>Carex</i> spp.)	26	6-58	100	
WESTERN PORCUPINE GRASS (<i>Stipa curtisetia</i>)	23	9-46	100	
WESTERN WHEAT GRASS (<i>Agropyron smithii</i>)	4	0-20	63	
				Forage Production (kg/ha) n=
				Mean
				Min
				Max
				Forb
				Grass
				Shrub
				Tree
				Total
				1248
				700
				1496
				Ecologically Sustainable Stocking Rate
				1.01 (1.35-0.58) HA/AUM or 0.40 (0.30-0.70) AUM/AC

11.1.2

PPC1. Sedge-Wheat grass-June grass

(*Carex* spp.-*Agropyron* spp.-*Koeleria macrantha*)

n=15 This community is found on gentle to moderate slopes of about 5-45% or 3-24 degrees (S1 and S4 slopes from Adams 1981). This community appears to represent a western porcupine grass dominated community (PPA2) that has undergone some alteration due to grazing or other disturbances. There is very little shrub cover as part of this community. Sedge moderately dominates with western porcupine grass, pasture sagewort, prairie crocus, green needle grass, western wheat grass, northern wheat grass and June grass are also common. A diversity of forbs is usually present, however individually they are not in very large amounts. Low goldenrod, small-leaved everlasting and wild vetch are often present.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: b grassland slopes (subxeric/medium)

Ecosite Phase: b1 western porcupine grass

Plant Composition		Canopy Cover (%)		Environmental Variables	
	Mean	Range	Const.		
Shrub				Moisture Regime: SUBXERIC()	
SNOWBERRY (BUCKBRUSH) (<i>Symphoricarpos occidentalis</i>)				1	0-8 27
Forb				Nutrient Regime: MESOTROPHIC()	
BASTARD TOADFLAX (<i>Comandra umbellata</i>)				1	0-1 47
BRITTLE PRICKLY-PEAR (<i>Opuntia fragilis</i>)				1	0-8 53
COMMON DANDELION (<i>Taraxacum officinale</i>)				1	0-4 40
LOW GOLDENROD (<i>Solidago missouriensis</i>)				2	0-11 67
PASTURE SAGEWORT (<i>Artemisia frigida</i>)				7	0-29 93
PRAIRIE CROCUS (<i>Anemone patens</i>)				6	0-21 73
SMALL-LEAVED EVERLASTING (<i>Antennaria parvifolia</i>)				1	0-5 67
Grass				Soil Exposure	
GREEN NEEDLE GRASS (<i>Stipa viridula</i>)		6	0-25 47	Mean	Min Max
JUNE GRASS (<i>Koeleria macrantha</i>)		8	1-17 100	%	
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)		1	0-5 13	Comment:	
NORTHERN WHEAT GRASS (<i>Agropyron dasystachyum</i>)		4	0-21 47	Forage Production (kg/ha) n=	
SEDGE SPECIES (<i>Carex spp.</i>)		18	0-43 67	Mean	Min Max
WESTERN PORCUPINE GRASS (<i>Stipa curtisetata</i>)		6	0-15 93		
WESTERN WHEAT GRASS (<i>Agropyron smithii</i>)		4	0-16 80		
				Ecologically Sustainable Stocking Rate	
				1.35 (2.02-0.81) HA/AUM or 0.30 (0.20-0.50) AUM/AC	

11.1.3

PPC2. June grass-Sedge/Pasture sagewort

(*Koeleria macrantha*-*Carex* Spp./*Artemisia frigida*)

n=10 A community type found on drier, moderately to heavily grazed and disturbed sites with a slope of 5-45% or 3-24 degrees (S1 and S4 slope positions from Adams 1981). Sedge moderately dominates with June grass and pasture sagewort also common. Brittle prickly-pear is usually present. There is a little shrub coverage of buckbrush and Saskatoon. Porcupine grass has decreased and brittle prickly pear cactus has increased with grazing pressure. Species diversity within this community is generally quite low. There is also low moss and lichen coverage and increased amounts of bare soil due to grazing pressure.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: b grassland slopes (subxeric/medium)

Ecosite Phase: b1 western porcupine grass

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Shrub				Moisture Regime: SUBXERIC()
SASKATOON				Nutrient Regime: MESOTROPHIC()
(<i>Amelanchier alnifolia</i>)	2	0-16	10	Elevation (range): (-) M
SNOWBERRY (BUCKBRUSH)				Slope: 6 - 9(), 10 - 15(), 16 - 30(), 31 - 45()
(<i>Symphoricarpos occidentalis</i>)	2	0-10	70	Aspect: Southerly(), Westerly()
Forb				Soil Drainage: Well drained()
BASTARD TOADFLAX				Soil Subgroup:
(<i>Comandra umbellata</i>)	1	0-1	30	Soil Series:
BRITTLE PRICKLY-PEAR				Soil Correlation:
(<i>Opuntia fragilis</i>)	3	0-8	60	Range Site Category:
COMMON DANDELION				Ecological Status Score: 9
(<i>Taraxacum officinale</i>)	1	0-1	60	
PASTURE SAGEWORT				
(<i>Artemisia frigida</i>)	10	0-20	100	
PRAIRIE CROCUS				
(<i>Anemone patens</i>)	3	0-15	50	
SMALL-LEAVED EVERLASTING				
(<i>Antennaria parvifolia</i>)	3	0-19	70	
Grass				Soil Exposure
GREEN NEEDLE GRASS				Mean
(<i>Stipa viridula</i>)	5	0-14	60	Min
JUNE GRASS				Max
(<i>Koeleria macrantha</i>)	9	2-18	100	%:
SEDGE SPECIES				Comment:
(<i>Carex spp.</i>)	19	8-25	100	
WESTERN PORCUPINE GRASS				Forage Production (kg/ha) n=
(<i>Stipa curtisetata</i>)	3	0-5	80	Mean
WESTERN WHEAT GRASS				Min
(<i>Agropyron smithii</i>)	4	0-16	80	Max
				Forb
				Grass
				Shrub
				Tree
				Undifferentiated
				550
				Total
				550
				0
				0

Ecologically Sustainable Stocking Rate

2.02 (4.05-1.35) HA/AUM or 0.20 (0.10-0.30) AUM/AC

11.1.4

PPC5. Dandelion/Sedge

(*Taraxacum officinale*/Carex Spp.)

n=17 This community type occurs as a result of long term heavy to very heavy grazing pressure or disturbance. Preferential livestock grazing and loafing areas such as the tops of rolling hills and knolls, benches and river terraces or flats are especially vulnerable to the type of pressure that can lead to this community type. Dandelion and sedges dominate with other species only occurring in minor or trace amounts. Litter is sparse; bare ground is prevalent. Mat muhly can be found where saline seeps occur in these areas. Found on S5, S1 and S4 slope positions (Adams 1981).

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: b grassland slopes (subxeric/medium)

Ecosite Phase: b1 western porcupine grass

Plant Composition		Canopy Cover (%)		Const.	Environmental Variables			
		Mean	Range					
Shrub					Moisture Regime: SUBXERIC()			
SNOWBERRY (BUCKBRUSH)					Nutrient Regime: MESOTROPHIC()			
(<i>Symphoricarpos occidentalis</i>)	2	0-7	59		Elevation (range): (-) M			
Forb					Slope: 3 - 5(), 6 - 9(), 10 - 15(), 16 - 30(), 31 - 45()			
COMMON DANDELION					Aspect: Variable()			
(<i>Taraxacum officinale</i>)	21	0-57	94		Soil Drainage: Well drained()			
COMMON YARROW					Soil Subgroup:			
(<i>Achillea millefolium</i>)	2	0-7	88		Soil Series:			
NORTHERN BEDSTRAW					Soil Correlation:			
(<i>Galium boreale</i>)	3	0-30	71		Range Site Category:			
Grass					Ecological Status Score: 0			
GREEN NEEDLE GRASS					Soil Exposure			
(<i>Stipa viridula</i>)	1	0-11	29			Mean	Min	Max
JUNE GRASS					%:			
(<i>Koeleria macrantha</i>)	4	0-13	77		Comment:			
KENTUCKY BLUEGRASS					Forage Production (kg/ha) n=			
(<i>Poa pratensis</i>)	1	0-2	6			Mean	Min	Max
MAT MUHLY					Forb			
(<i>Muhlenbergia richardsonis</i>)	7	0-53	18		Grass			
NORTHERN WHEAT GRASS					Shrub			
(<i>Agropyron dasystachyum</i>)	2	0-8	35		Tree			
PLAINS MUHLY					Undifferentiated			
(<i>Muhlenbergia cuspidata</i>)	4	0-63	12			400		
ROUGH HAIR GRASS					Total	400	0	0
(<i>Agrostis scabra</i>)	1	0-12	24					
SEDGE SPECIES								
(<i>Carex spp.</i>)	10	0-33	94					
WESTERN PORCUPINE GRASS								
(<i>Stipa curtisetia</i>)	1	0-7	24					
WESTERN WHEAT GRASS								
(<i>Agropyron smithii</i>)	1	0-5	18					

Ecologically Sustainable Stocking Rate

4.05 (8.09-4.05) HA/AUM or 0.10 (0.05-0.10) AUM/AC

11.2 b2 northern wheat grass (n=28)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: grassland slopes (subxeric/medium)

Characteristic Species

Shrub

- [4] saskatoon
- [2] Snowberry (buckbrush)
- [1] prickly rose

Forb

- [11] pasture sagewort
- [1] common dandelion
- [1] brittle prickly-pear
- [1] wild blue flax

Grass

- [8] June grass
- [7] sedge species
- [7] northern wheat grass
- [2] green needle grass
- [2] western wheat grass
- [1] slender wheat grass
- [1] western porcupine grass

*Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: XERIC(), SUBXERIC()

Nutrient Regime: SUBMESOTROPHIC()

Topographic Position: Crest(), Midslope(), Upper slope()

Slope: 46 - 70(), 71 - 100()

Aspect: Easterly(), Southerly(), Westerly()

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage: Well drained()

Parent Material:

Soil Subgroup:

Soil Type:

Plant Community Types (n)

PPA3 Northern wheat grass-June grass-Sedge/Fringed sage (28)

11.2.1 PPA3. Northern wheat grass-June grass-Sedge/Fringed sage

(*Agropyron dasystachyum*-*Koeleria macrantha*-*Carex* Spp./*Artemisia frigida*)

n=28 This community is similar to the DMA6-Northern wheat grass-June grass/Fringed sage community in the Dry Mixedwood Guide (Willoughby et al. 2006). This community type is found on dry, steep (45-95% or 24-40 degrees), south facing slopes along major river valleys like those of the Peace, Smoky and Wapiti rivers and their tributaries (S2 slope positions from Adams 1981). Adams (1981) felt this community type would form when the western porcupine grass community was heavily to moderately grazed, but a number of plots were described in an area that had little grazing pressure. This community was located on a much steeper slope (76% vs 35%) than the previously described western porcupine grass community type (PPA2). It is likely that the drier site conditions and shallower and poorer nutrient soils favours the growth of northern and western wheat grass over western porcupine grass. In the absence of disturbance western porcupine grass cover will increase, but it does not seem to dominate the site. The community has very little shrub cover with only occasional Saskatoon. Pasture sagewort, northern wheat grass, June grass and sedge all codominate but aren't always found at every site. A diversity of forb and grass species is present but individually not usually in very large amounts. These sites can easily become degraded with lots of bare soil and potential for erosion.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: b grassland slopes (subxeric/medium)

Ecosite Phase: b2 northern wheat grass

Plant Composition		Canopy Cover (%)		Environmental Variables				
		Mean	Range	Const.				
Shrub					Moisture Regime: XERIC(), SUBXERIC()			
PRICKLY ROSE (<i>Rosa acicularis</i>)	1	0-8	21	Nutrient Regime: SUBMESOTROPHIC()				
SASKATOON (<i>Amelanchier alnifolia</i>)	4	0-27	50	Elevation (range): 475(345-606) M				
SNOWBERRY (BUCKBRUSH) (<i>Symphoricarpos occidentalis</i>)	2	0-22	21	Slope: 46 - 70(), 71 - 100()				
Forb					Aspect: Southerly(), Westerly()			
BASTARD TOADFLAX (<i>Comandra umbellata</i>)	1	0-5	46	Soil Drainage: Well drained()				
BRITTLE PRICKLY-PEAR (<i>Opuntia fragilis</i>)	1	0-3	29	Soil Subgroup:				
COMMON DANDELION (<i>Taraxacum officinale</i>)	1	0-2	54	Soil Series:				
PASTURE SAGEWORT (<i>Artemisia frigida</i>)	11	0-25	96	Soil Correlation:				
WILD BLUE FLAX (<i>Linum lewisii</i>)	1	0-4	18	Range Site Category:				
					Ecological Status Score: 24			
					Soil Exposure			
					Mean	Min	Max	
Grass					%			
GREEN NEEDLE GRASS (<i>Stipa viridula</i>)	2	0-20	29	Comment:				
JUNE GRASS (<i>Koeleria macrantha</i>)	8	0-27	93	Forage Production (kg/ha) n=				
NEEDLE-AND-THREAD (<i>Stipa comata</i>)	1	0-5	14	Forb	183	50	400	
NORTHERN WHEAT GRASS (<i>Agropyron dasystachyum</i>)	7	0-70	61	Grass	600	500	798	
SEDGE SPECIES (<i>Carex spp.</i>)	7	0-38	82	Shrub	309	220	450	
SLENDER WHEAT GRASS (<i>Agropyron trachycaulum</i>)	1	0-30	7	Tree				
WESTERN PORCUPINE GRASS (<i>Stipa curtisetata</i>)	1	0-5	25	Total	1092	770	1648	
WESTERN WHEAT GRASS (<i>Agropyron smithii</i>)	2	0-17	40	Ecologically Sustainable Stocking Rate				
					1.35 (2.02-1.01) HA/AUM or 0.30 (0.20-0.40) AUM/AC			

12.0 c northern rice grass (submesic/poor) (n=5)

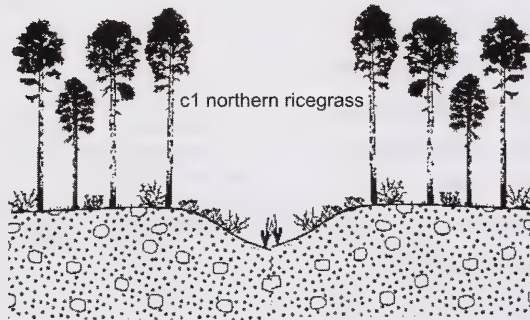
Natural Subregion: PEACE RIVER PARKLAND

General Description

This ecosite is associated with small grassy openings within the Jack pine and aspen forests. This site has dry conditions, with well drained, nutrient poor soils. The parent materials are generally coarse textured eolian, glacialfluvial or fluvial eolian in origin. The high insolation and dry site conditions favour the growth of grassland species. These include Northern rice grass, slender wheat grass, sedge, bearberry and plains wormwood. In the moister sites (lower slope positions) aspen and shrubs (Saskatoon, rose) are quite common.

d2 blueberry Aw

d2 blueberry Aw



Site Characteristics

Moisture Regime: SUBMESIC()

Nutrient Regime: SUBMESOTROPHIC()

Topographic Position: Crest()

Slope: 6 - 9(), 10 - 15()

Aspect: Variable()

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture: LS()

Effective Texture:

Depth to Mottles/Gley: None()

Soil Drainage: Well drained()

Parent Material:

Soil Subgroup:

Successional Relationships

Due to the nature of the site, grasslands often remain the climax vegetation on these sites. In the moister lower slope positions shrubs often dominate the site with succession to aspen and spruce. On the drier hilltops and midslopes grasslands dominated by plains wormwood and northern rice grass usually represent the climax vegetation. Heavy grazing pressure on the grasslands can often lead to a degraded site that is dominated by Kentucky bluegrass on the moister sites.

Indicator Species

slender wheat grass	saskatoon
common bearberry	plains wormwood
sedge species	Rocky Mountain fescue
wild strawberry	northern bedstraw
northern rice grass	prickly rose
Snowberry (buckbrush)	

Forage Production Summary (kg/ha)

(Refer to the Plant Community for detailed Stocking Rate Information)

	Forage Production (kg/ha)			Total	Stocking Rate ha/aum(aum/ac)
	Grass	Forb	Shrub		
c northern rice grass (submesic/poor)					
c1 northern rice grass-bearberry				677	2.70(0.15)
PPA4 Saskatoon/Bearberry/Northern rice grass				677	2.70(0.15)

12.1 c1 northern rice grass-bearberry (n=5)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: northern rice grass (submesic/poor)

Characteristic Species

Shrub

- [28] saskatoon
- [7] Snowberry (buckbrush)
- [4] prickly rose

Forb

- [75] common bearberry
- [12] northern bedstraw
- [9] wild strawberry
- [4] mountain goldenrod
- [3] prairie crocus
- [3] cut-leaved anemone
- [2] common yarrow
- [2] bastard toadflax
- [1] plains wormwood

Grass

- [23] northern rice grass
- [23] sedge species
- [10] western porcupine grass
- [3] slender wheat grass
- [2] June grass
- [2] Rocky Mountain fescue

* Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: SUBMESIC()

Nutrient Regime: MESOTROPIC()

Topographic Position:

Slope:

Aspect:

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage: Well drained()

Parent Material:

Soil Subgroup:

Soil Type:

Plant Community Types (n)

PPA4 Saskatoon/Bearberry/Northern rice grass (5)

12.1.1

PPA4. Saskatoon/Bearberry/Northern rice grass

(*Amelanchier alnifolia*/*Arctostaphylos uva-ursi*/*Oryzopsis pungens*)

n=5 A shrub community found on submesic, nutrient poor soil. Common bearberry is strongly dominant. Saskatoon, northern rice grass and sedge are also found on these sites but are generally less abundant. There is very little forage produced on these sites and this community should be rated as non-use.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: c northern rice grass (submesic/poor)

Ecosite Phase: c1 northern rice grass-bearberry

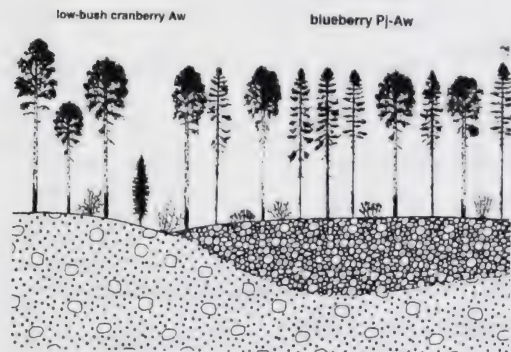
Plant Composition	Canopy Cover (%)			Environmental Variables			
	Mean	Range	Const.				
Shrub				Moisture Regime: SUBMESIC()			
PRICKLY ROSE (<i>Rosa acicularis</i>)	4	0-15	60	Nutrient Regime: SUBMESOTROPHIC()			
SASKATOON (<i>Amelanchier alnifolia</i>)	28	15-50	100	Elevation (range): 642(-) M			
SNOWBERRY (BUCKBRUSH) (<i>Symphoricarpos occidentalis</i>)	7	0-35	60	Slope:			
Forb				Aspect:			
BASTARD TOADFLAX (<i>Comandra umbellata</i>)	2	0-3	80	Soil Drainage: Well drained()			
COMMON BEARBERRY (<i>Arctostaphylos uva-ursi</i>)	75	75-75	100	Soil Subgroup:			
COMMON YARROW (<i>Achillea millefolium</i>)	2	0-4	60	Soil Series:			
CUT-LEAVED ANEMONE (<i>Anemone multifida</i>)	3	0-5	80	Soil Correlation:			
MOUNTAIN GOLDENROD (<i>Solidago spathulata</i>)	4	0-10	60	Range Site Category:			
NORTHERN BEDSTRAW (<i>Galium boreale</i>)	12	3-24	100	Ecological Status Score: 24			
PLAINS WORMWOOD (<i>Artemisia campestris</i>)	1	0-4	40	Soil Exposure			
PRAIRIE CROCUS (<i>Anemone patens</i>)	3	0-10	60	Mean			
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	9	0-27	80	Min			
Grass				Max			
JUNE GRASS (<i>Koeleria macrantha</i>)	2	0-6	40	%:			
NORTHERN RICE GRASS (<i>Oryzopsis pungens</i>)	23	3-42	100	Comment:			
ROCKY MOUNTAIN FESCUE (<i>Festuca saximontana</i>)	2	0-3	60	Forage Production (kg/ha) n=			
SEDGE SPECIES (<i>Carex spp.</i>)	23	15-30	100	Mean			
SLENDER WHEAT GRASS (<i>Agropyron trachycaulum</i>)	3	0-6	80	Min			
WESTERN PORCUPINE GRASS (<i>Stipa curtiseta</i>)	10	0-32	40	Max			
				Forb			
				Grass			
				Shrub			
				Tree			
				Undifferentiated			
				677			
				Total			
				677			
				0			
				0			
				Ecologically Sustainable Stocking Rate			
				2.70 (4.05-2.02) HA/AUM or 0.15 (0.10-0.20) AUM/AC			

13.0 d blueberry (submesic/medium) (n=34)

Natural Subregion: PEACE RIVER PARKLAND

General Description

This ecosite tends to be subxeric to submesic as a result of relatively coarse-textured glaciofluvial parent materials. Conditions are intermediate in both moisture and nutrient regime between the lichen ecosite and the low bush cranberry ecosite described by Beckingham and Archibald (1996) in the Boreal Mixedwood of Northern Alberta. Species characteristic of this ecological site include jack pine, aspen, blueberry, bearberry, white spruce, hairy wildrye, yellow pea vine.



Successional Relationships

The jack pine, aspen, and white birch-dominated phases of this ecosite may, in some cases, succeed to white spruce but the process is slow due to the dry nature of this ecosite.

Indicator Species

common bearberry	hairy wild rye
cream-colored vetchling	wild lily-of-the-valley
northern rice grass	prickly rose
common blueberry	

Site Characteristics

Moisture Regime: SUBXERIC(), SUBMESIC()

Nutrient Regime: SUBMESOTROPHIC()

Topographic Position

Slope

Aspect

Soil Characteristics

Organic Thickness: 0 - 5 cm(60), 6 - 15 cm(40)

Humus Form: MOR(90)

Surface Texture: LS(20), S(50)

Effective Texture: LS(20), S(40)

Depth to Mottles/Gley: None(90)

Soil Drainage: Rapidly drained(40), Well drained(50), Moderate well drain(10)

Parent Material: E(10), GF(40), M(10)

Soil Subgroup: O.EB(20), E.EB(40), E.DYB(10), O.GL(20)

Site Index at 50 Years

white birch: 11.5 m +/- 1.7 m; n=2

white spruce: 17.5 m +/- 0.7 m; n=28

jack pine: 14.3 m +/- 0.5 m; n=29

aspen: 15.8 m +/- 0.5 m; n=56

Forage Production Summary (kg/ha)

(Refer to the Plant Community for detailed Stocking Rate Information)

	Forage Production (kg/ha)				Stocking Rate ha/aum(aum/ac)
	Grass	Forb	Shrub	Total	
d blueberry (submesic/medium)					
d1 blueberry Pj-Aw	141	325	110	576	8.09(0.05)
PPE1 Pj-Aw/Bearberry	141	325	110	576	8.09(0.05)
d2 blueberry Aw (Bw)	339	263	145	749	2.70(0.15)
PPD4 Aw/Dwarf bilberry-Bearberry/Mountain rice grass	339	263	145	747	2.70(0.15)
PPD5 Aw/Blueberry				750	2.70(0.15)
d3 blueberry Tame	600	233	167	1000	1.52(0.27)
PPF7 Wheat grass-Creeping red fescue-Timothy	500	300	200	1000	0.51(0.79)
PPF8 Rose/Dandelion/Hairy wild rye	500	300	200	1000	2.02(0.20)
PPF9 Aw-Pb/Rose/Hairy wild rye	800	100	100	1000	2.02(0.20)

13.1 d1 blueberry Pj-Aw (n=4)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: blueberry (submesic/medium)

Characteristic Species

Tree

- [45] jack pine
- [13] aspen

Shrub

- [9] saskatoon
- [7] common blueberry
- [6] prickly rose

Forb

- [15] common bearberry
- [7] cream-colored vetchling
- [2] wild lily-of-the-valley
- [2] northern bedstraw

Grass

- [10] hairy wild rye

Moss

- [2] Undifferentiated moss - all Gener

* Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: SUBMESIC()

Nutrient Regime: SUBMESOTROPHIC()

Topographic Position:

Slope: 0 - 0.5(), 0.5 - 2.5(), 3 - 5()

Aspect:

Soil Characteristics

Organic Thickness: 0 - 5 cm(60), 6 - 15 cm(40)

Humus Form: MOR(90)

Surface Texture: LS(20), S(50), SL(10)

Effective Texture: LS(10), S(40), SCL(10)

Depth to Mottles/Gley: None(90)

Soil Drainage: Rapidly drained(30), Well drained(50), Moderate well drain(20)

Parent Material: E(20), F(10), GF(30), M(10)

Soil Subgroup: O.EB(20), E.EB(30), O.GL(10)

Soil Type: SV1(30), SD2(20), SD4(10), SM4(10)

Plant Community Types (n)

PPE1 Pj-Aw/Bearberry (4)

13.1.1

PPE1. Pj-Aw/Bearberry

(*Pinus banksiana*-*Populus tremuloides*/*Arctostaphylos uva-ursi*)

n=4 This community is the same as DMD2 in the Dry Mixedwood Guide (Willoughby et al. 2006). It represents a Jack pine forest with a secondary canopy of aspen. It is found on slightly moister soils with better nutrient regimes than pure Jack pine dominated sites. These conditions favour the growth of aspen. Cattle will utilize these areas due to the easy access, however over-utilization will quickly deplete the forage supply.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: d blueberry (submesic/medium)

Ecosite Phase: d1 blueberry Pj-Aw

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Tree				Moisture Regime: SUBMESIC()
ASPEN				Nutrient Regime: SUBMESOTROPHIC()
(<i>Populus tremuloides</i>)	13	10-20	100	Elevation (range): 606(-) M
JACK PINE				Slope: 0 - 0.5(), 0.5 - 2.5(), 3 - 5()
(<i>Pinus banksiana</i>)	45	30-45	100	Aspect:
Shrub				Soil Drainage: Rapidly drained()
COMMON BLUEBERRY				Soil Subgroup:
(<i>Vaccinium myrtilloides</i>)	7	0-2	75	Soil Series:
PRICKLY ROSE				Soil Correlation:
(<i>Rosa acicularis</i>)	6	4-8	100	Range Site Category:
SASKATOON				Ecological Status Score: 18
(<i>Amelanchier alnifolia</i>)	9	1-15	100	
Forb				
COMMON BEARBERRY				
(<i>Arctostaphylos uva-ursi</i>)	15	7-64	100	
CREAM-COLORED VETCHLING				
(<i>Lathyrus ochroleucus</i>)	7	3-7	100	
NORTHERN BEDSTRAW				
(<i>Galium boreale</i>)	2	1-3	100	
WILD LILY-OF-THE-VALLEY				
(<i>Maianthemum canadense</i>)	2	1-5	100	
Grass				
HAIRY WILD RYE				
(<i>Elymus innovatus</i>)	10	2-16	100	
Moss				
UNDIFFERENTIATED MOSS - ALL GENERA				
(<i>Moss spp</i>)	2	0-7	25	

Soil Exposure

Mean Min Max

%:

Comment:

Forage Production (kg/ha) n=

	Mean	Min	Max
Forb	325		
Grass	141		
Shrub	110		
Tree			
Total	576	0	0

Ecologically Sustainable Stocking Rate

8.09 (8.09-4.05) HA/AUM or 0.05 (0.05-0.10) AUM/AC

13.2 d2 blueberry Aw (Bw) (n=27)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: blueberry (submesic/medium)

Characteristic Species

Tree

- [39] aspen
- [1] white spruce*

Shrub

- [21] common blueberry
- [5] prickly rose

Forb

- [17] twinflower
- [14] common bearberry
- [10] wild lily-of-the-valley
- [5] wild strawberry
- [4] cream-colored vetchling*

Grass

- [6] hairy wild rye
- [3] northern rice grass

* Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: SUBXERIC(), SUBMESIC()

Nutrient Regime: SUBMESOTROPHIC()

Topographic Position:

Slope:

Aspect:

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage:

Parent Material:

Soil Subgroup:

Soil Type:

Plant Community Types (n)

PPD4 Aw/Dwarf bilberry-Bearberry/Mountain rice grass (26)

PPD5 Aw/Blueberry (1)

13.2.1 PPD4. Aw/Dwarf bilberry-Bearberry/Mountain rice grass

(*Populus tremuloides*/*Vaccinium caespitosum*-*Arctostaphylos uva-ursi*/*Oryzopsis asperifolia*)

n=26 This community type is the same as DMC1 in the Dry Mixedwood Guide (Willoughby et al. 2006). It is found on dry, well-drained, sandy sites interspersed with stands of jack pine and is part of the blueberry ecosite outlined by Beckingham and Archibald (1996). The canopy cover of aspen is open allowing for easy access by livestock, but the dry site conditions and poorer nutrient status limit the amount of regrowth after grazing. If this community type is managed for one rotation a year, it can contribute significantly to the overall carrying capacity of a lease.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: d blueberry (submesic/medium)

Ecosite Phase: d2 blueberry Aw (Bw)

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Tree				Moisture Regime: SUBMESIC()
ASPEN				Nutrient Regime: SUBMESOTROPHIC()
(<i>Populus tremuloides</i>)	43	20-75	100	Elevation (range): 455(-) M
WHITE SPRUCE				Slope:
(<i>Picea glauca</i>)	2	0-15	42	Aspect:
Shrub				Soil Drainage: Well drained()
COMMON BLUEBERRY				Soil Subgroup:
(<i>Vaccinium myrtilloides</i>)	2	0-13	50	Soil Series:
DWARF BILBERRY				Soil Correlation:
(<i>Vaccinium caespitosum</i>)	4	0-9	81	Range Site Category:
PRICKLY ROSE				Ecological Status Score: 18
(<i>Rosa acicularis</i>)	8	0-21	92	
SASKATOON				
(<i>Amelanchier alnifolia</i>)	4	0-22	77	
Forb				
COMMON BEARBERRY				
(<i>Arctostaphylos uva-ursi</i>)	7	0-36	75	
CREAM-COLORED VETCHLING				
(<i>Lathyrus ochroleucus</i>)	7	3-31	100	
LINDLEY'S ASTER				
(<i>Aster ciliolatus</i>)	2	0-6	89	
TWINFLOWER				
(<i>Linnaea borealis</i>)	8	0-22	88	
WILD LILY-OF-THE-VALLEY				
(<i>Maianthemum canadense</i>)	5	2-9	100	
WILD STRAWBERRY				
(<i>Fragaria virginiana</i>)	5	0-12	96	
Grass				
HAIRY WILD RYE				
(<i>Elymus innovatus</i>)	7	0-16	96	
NORTHERN RICE GRASS				
(<i>Oryzopsis pungens</i>)	1	0-10	35	
PURPLE OAT GRASS				
(<i>Schizachne purpurascens</i>)	3	0-10	81	
WHITE-GRAINED MOUNTAIN RICE GRASS				
(<i>Oryzopsis asperifolia</i>)	7	0-22	81	

Soil Exposure

Mean Min Max

%:

Comment:

Forage Production (kg/ha) n=

	Mean	Min	Max
Forb	263	64	610
Grass	339	166	442
Shrub	145	56	266
Tree			
Total	747	286	1318

Ecologically Sustainable Stocking Rate

2.70 (4.05-2.02) HA/AUM or 0.15 (0.10-0.20) AUM/AC

13.2.2

PPD5. Aw/Blueberry (*Populus tremuloides*/*Vaccinium myrtilloides*)

n=1 This community type is the same as DMC1a in the Dry Mixedwood Guide (Willoughby et al. 2006). It is found on dry, well-drained, sandy sites interspersed with stands of jack pine and is part of the blueberry ecosite outlined by Beckingham and Archibald (1996). The canopy cover of aspen is open allowing for easy access by livestock, but the dry site conditions and poorer nutrient status limit the amount of regrowth after grazing. If this community type is managed for one rotation a year, it can contribute significantly to the overall carrying capacity of a lease.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: d blueberry (submesic/medium)

Ecosite Phase: d2 blueberry Aw (Bw)

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Tree				Moisture Regime: SUBXERIC(), SUBMESIC()
ASPEN (<i>Populus tremuloides</i>)	35		100	Nutrient Regime: SUBMESOTROPHIC()
Shrub				Elevation (range): 455(-) M
COMMON BLUEBERRY (<i>Vaccinium myrtilloides</i>)	40		100	Slope:
LOW-BUSH CRANBERRY (<i>Viburnum edule</i>)	2		100	Aspect:
PRICKLY ROSE (<i>Rosa acicularis</i>)	2		100	Soil Drainage: Well drained()
Forb				Soil Subgroup:
COMMON BEARBERRY (<i>Arctostaphylos uva-ursi</i>)	20		100	Soil Series:
TWINFLOWER (<i>Linnaea borealis</i>)	5		100	Soil Correlation:
WILD LILY-OF-THE-VALLEY (<i>Maianthemum canadense</i>)	15		100	Range Site Category:
WILD SARSAPARILLA (<i>Aralia nudicaulis</i>)	7		100	Ecological Status Score: 18
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	5		100	Soil Exposure
Grass				Mean Min Max
HAIRY WILD RYE (<i>Elymus innovatus</i>)	5		100	%:
NORTHERN RICE GRASS (<i>Oryzopsis pungens</i>)	4		100	Comment:
Lichen				Forage Production (kg/ha) n=
REINDEER LICHEN (<i>Cladonia mitis</i>)	1		100	Mean Min Max
				Forb
				Grass
				Shrub
				Tree
				Undifferentiated
				Total

Ecologically Sustainable Stocking Rate

2.70 (4.05-2.02) HA/AUM or 0.15 (0.10-0.20) AUM/AC

The forage production amount listed is an estimate.

13.3 d3 blueberry Tame (n=3)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: blueberry (submesic/medium)

Characteristic Species

Tree

- [12] balsam poplar
- [5] aspen

Shrub

- [4] prickly rose
- [1] Snowberry (buckbrush)

Forb

- [18] common dandelion
- [2] Undifferentiated clover

Grass

- [8] Creeping red fescue
- [4] crested wheat grass
- [3] Kentucky bluegrass
- [2] timothy

* Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: SUBMESIC()

Nutrient Regime: MESOTROPHIC()

Topographic Position:

Slope:

Aspect:

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage:

Parent Material:

Soil Subgroup:

Soil Type:

Plant Community Types (n)

PPF9 Aw-Pb/Rose/Hairy wild rye (1)

PPF7 Wheat grass-Creeping red fescue-Timothy (1)

PPF8 Rose/Dandelion/Hairy wild rye (1)

13.3.1 PPF7. Wheat grass-Creeping red fescue-Timothy (*Agropyron Spp.-Festuca rubra-Phleum pratense*)

n=1 This community type is the same as DMB19 in the Dry Mixedwood Guide (Willoughby et al. 2006). It occurs on cleared pastures that were seeded on submesic (dry) sites in the eastern part of the subregion near St. Paul. These sites occur on very stoney well drained soils and it was thought crested wheat grass would grow well in these site conditions. These pastures were seeded in the late 1980's with a mixture of pubescent wheat grass, timothy, creeping red fescue, alfalfa, crested wheat grass and sweet clover. Crested wheat grass and creeping red fescue were found to dominate the dry hilltops and timothy was found on the moist lowland sites. There was little evidence of pubescent wheat grass, alfalfa or sweet clover surviving from the original mix. These pastures often undergo succession to a shrub dominated community and then a deciduous dominated community type.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: d blueberry (submesic/medium)

Ecosite Phase: d3 blueberry Tame

Plant Composition	Canopy Cover (%)			Environmental Variables		
	Mean	Range	Const.			
Shrub				Moisture Regime: SUBMESIC()		
PRICKLY ROSE (<i>Rosa acicularis</i>)	1		100	Nutrient Regime: MESOTROPHIC()		
Forb				Elevation (range): 579(-) M		
COMMON BEARBERRY (<i>Arctostaphylos uva-ursi</i>)	1		100	Slope:		
COMMON DANDELION (<i>Taraxacum officinale</i>)	29		100	Aspect:		
UNDIFFERENTIATED CLOVER (<i>Trifolium</i>)	1		100	Soil Drainage: Well drained()		
Grass				Soil Subgroup:		
CREEPING RED FESCUE (<i>Festuca rubra</i>)	7		100	Soil Series:		
CRESTED WHEAT GRASS (<i>Agropyron pectiniforme</i>)	11		100	Soil Correlation:		
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)	3		100	Range Site Category:		
TIMOTHY (<i>Phleum pratense</i>)	5		100	Ecological Status Score: 8		
				Soil Exposure		
				Mean	Min	Max
				%		
				Comment:		
				Forage Production (kg/ha) n=		
				Mean	Min	Max
Forb				300		
Grass				500		
Shrub				200		
Tree						
Total				1000	0	0

Ecologically Sustainable Stocking Rate

0.51 (0.51-0.40) H/AUM or 0.79 (0.79-1.01) AUM/AC

13.3.2

PPF8. Rose/Dandelion/Hairy wild rye (*Rosa acicularis*/*Taraxacum officinale*/*Elymus innovatus*)

n=1 This community is the same as DMB22 in the Dry Mixedwood Guide (Willoughby et al. 2006). It represents early invasion of shrubs onto drier (submesic) sites on pastures in the St. Paul area of the subregion. As seeded pastures undergo succession back to a deciduous dominated forest they are often invaded by rose and willow before the trees become dominant. This community represents an early successional community of PPF9. Burning, cultivation and spraying with herbicide are all options that can be considered in order to control shrub regrowth.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: d blueberry (submesic/medium)

Ecosite Phase: d3 blueberry Tame

Plant Composition	Canopy Cover (%)			Environmental Variables			
	Mean	Range	Const.				
Tree				Moisture Regime: SUBMESIC()			
ASPEN				Nutrient Regime: MESOTROPHIC()			
(Populus tremuloides)	1		100	Elevation (range): 600(-) M			
BALSAM POPLAR				Slope:			
(Populus balsamifera)	1		100	Aspect:			
Shrub				Soil Drainage: Well drained()			
BEAKED WILLOW				Soil Subgroup:			
(Salix bebbiana)	4		100	Soil Series:			
PRICKLY ROSE				Soil Correlation:			
(Rosa acicularis)	6		100	Range Site Category:			
SNOWBERRY (BUCKBRUSH)				Ecological Status Score: 0			
(Symphoricarpos occidentalis)	2		100				
Forb							
COMMON DANDELION				Soil Exposure			
(Taraxacum officinale)	22		100	Mean	Min	Max	
UNDIFFERENTIATED CLOVER				%:			
(Trifolium)	3		100	Comment:			
WILD STRAWBERRY				Forage Production (kg/ha) n=			
(Fragaria virginiana)	3		100	Mean	Min	Max	
Grass							
CREeping RED FESCUE							
(Festuca rubra)	8		100				
CRESTED WHEAT GRASS							
(Agropyron pectiniforme)	1		100	Forb	300		
HAIRY WILD RYE				Grass	500		
(Elymus innovatus)	4		100	Shrub	200		
KENTUCKY BLUEGRASS				Tree			
(Poa pratensis)	4		100	Total	1000	0	0
TIMOTHY							
(Phleum pratense)	1		100				

Ecologically Sustainable Stocking Rate

2.02 (4.05-0.51) HA/AUM or 0.20 (0.10-0.79) AUM/AC

13.3.3

PPF9. Aw-Pb/Rose/Hairy wild rye

(*Populus tremuloides*-*P.balsamifera*/*Rosa acicularis*/*Elymus innovatus*)

n=1 This community is the same as DMB23 in the Dry Mixedwood Guide (Willoughby et al. 2006). It represents old pastures on dry sandy sites that were cleared of trees and aerial seeded with brome, timothy, crested wheat grass and creeping red fescue in the 1980's near St. Paul. In the absence of disturbance these sites have been slowly encroached by trees and the understory has been invaded by hairy wild rye. These sites are moderately productive and are easily accessible to livestock.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: d blueberry (submesic/medium)

Ecosite Phase: d3 blueberry Tame

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Tree				Moisture Regime: SUBMESIC()
ASPEN				Nutrient Regime: MESOTROPHIC()
(<i>Populus tremuloides</i>)	15		100	Elevation (range): 600(-) M
BALSAM POPLAR				Slope:
(<i>Populus balsamifera</i>)	35		100	Aspect:
Shrub				Soil Drainage: Well drained()
BEAKED WILLOW				Soil Subgroup:
(<i>Salix bebbiana</i>)	1		100	Soil Series:
PRICKLY ROSE				Soil Correlation:
(<i>Rosa acicularis</i>)	6		100	Range Site Category:
SNOWBERRY (BUCKBRUSH)				Ecological Status Score: 0
(<i>Symphoricarpos occidentalis</i>)	1		100	
Forb				
COMMON DANDELION				
(<i>Taraxacum officinale</i>)	4		100	
UNDIFFERENTIATED CLOVER				
(<i>Trifolium</i>)	1		100	
WILD STRAWBERRY				
(<i>Fragaria virginiana</i>)	1		100	
Grass				
CREeping RED FESCUE				
(<i>Festuca rubra</i>)	9		100	
CRESTED WHEAT GRASS				
(<i>Agropyron pectiniforme</i>)	1		100	
HAIRY WILD RYE				
(<i>Elymus innovatus</i>)	24		100	
KENTUCKY BLUEGRASS				
(<i>Poa pratensis</i>)	1		100	
SLENDER WHEAT GRASS				
(<i>Agropyron trachycaulum</i>)	1		100	

Soil Exposure	Mean	Min	Max
%:			

Comment:

Forage Production (kg/ha) n=			
	Mean	Min	Max
Forb	100		
Grass	800		
Shrub	100		
Tree			
Total	1000	0	0

Ecologically Sustainable Stocking Rate

2.02 (4.05-0.51) HA/AUM or 0.20 (0.10-0.79) AUM/AC

14.0 e upland solonetzic/grassland slope (mesic) (n=105)

Natural Subregion: PEACE RIVER PARKLAND

General Description

This ecosite is associated with remnant prairies located on upland areas as well as with grassland slopes of the Peace River region of Alberta. On the upland areas, it is associated with dark colored solonetzic and chernomzic soils. The parent materials are generally fine textured, slightly saline, fluvial, lacustrine or lacustrine-till in origin. The hard impermeable B horizon and slightly saline conditions tend to favour the growth of grassland species (Wilkinson and Johnson 1983). These include western porcupine grass, slender wheat grass, sedge and intermediate oat grass. Trees are gradually moving into the old prairie remnants. Sites are typically moister than those found on much of the river slopes, and this favours northern bedstraw. This ecosite also occurs in the moister draws and flatter areas of river slopes such as benches, terraces and valley bottoms. On moister sites snowberry often can dominate the plant community.



Successional Relationships

Due to the nature of the site, grasslands often remain the climax vegetation, however human activities have greatly modified the original vegetation cover of the upland areas. Heavy grazing pressure on the remnant grasslands can often lead to a degraded site dominated by sedge, Kentucky bluegrass, dandelion and wild strawberry. Shrub encroachment and invasion by non-native species on many of these sites will likely prevent a return to vegetation similar to that of the reference plant community type.

Indicator Species

common yarrow	slender wheat grass
saskatoon	sedge species
Intermediate oat grass	wild strawberry
northern bedstraw	Kentucky bluegrass
prickly rose	western porcupine grass
Snowberry (buckbrush)	common dandelion

Site Characteristics

Moisture Regime: SUBMESIC(), MESIC()

Nutrient Regime: MESOTROPHIC(), PERMESOTROPHIC()

Topographic Position: Level(), Crest(), Lower slope()

Slope: 0.5 - 2.5(), 3 - 5(), 6 - 9(), 10 - 15()

Aspect: Variable()

Soil Characteristics

Organic Thickness: 0 - 5 cm(), 6 - 15 cm()

Humus Form: MULL()

Surface Texture: CL(), L()

Effective Texture: C(), CL()

Depth to Mottles/Gley: Not Applicable()

Soil Drainage: Well drained()

Parent Material: F(), GF()

Soil Subgroup: O BL(), BL SZ(), BL SS(), BL SO()

Forage Production Summary (kg/ha)

(Refer to the Plant Community for detailed Stocking Rate Information)

	Forage Production (kg/ha)			Total	Stocking Rate ha/aum(aum/ac)
	Grass	Forb	Shrub		
e upland solonchic/grassland slope (mesic)					
e1 western porcupine grass				950	1.01(0.40)
PPA8 Sedge-Western porcupinegrass-Intermediate oatgrass				1050	0.67(0.60)
PPC6 Sedge-Low forb				950	1.35(0.30)
PPC8 Kentucky bluegrass/Low Forb				850	1.01(0.40)
e2 intermediate oat grass-slender wheat grass	1463	818	227	2554	0.63(0.65)
PPA15 Purple oat grass-Sedge-Intermediate oat grass	1463	818	227	2508	0.58(0.70)
PPA16 Veiny meadow rue/Slender wheat grass-F. brome				2600	0.67(0.60)
e3 shrubland				1303	1.02(0.40)
PPA10 Shrub/Western porcupine grass-Sedge				1450	1.35(0.30)
PPA5 Snowberry-Saskatoon/Sedge				1250	1.35(0.30)
PPA6 Saskatoon-Rose/Sedge				670	1.35(0.30)
PPA7 Silverberry-Saskatoon/Sedge				1800	0.81(0.50)
PPC10 Snowberry/Kentucky bluegrass				2000	0.58(0.70)
PPC4 Rose-Saskatoon/Kentucky bluegrass				650	0.67(0.60)
e4 salt grass				950	2.02(0.20)
PPA9 Sedge-Salt grass				950	2.02(0.20)

14.1 e1 western porcupine grass (n=55)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: upland solonchalc/grassland slope (mesic)

Characteristic Species

Shrub

- [4] saskatoon
- [3] prickly rose
- [2] Snowberry (buckbrush)

Forb

- [9] common yarrow
- [9] northern bedstraw
- [6] three-flowered avens
- [5] prairie crocus
- [5] common dandelion

Grass

- [35] sedge species
- [20] western porcupine grass
- [13] Kentucky bluegrass
- [7] Intermediate oat grass
- [3] slender wheat grass
- [3] June grass
- [2] western wheat grass

*Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: MESIC()

Nutrient Regime: MESOTROPHIC(), PERMESOTROPHIC()

Topographic Position: Crest(), Midslope(), Upper slope()

Slope: 0.5 - 2.5(), 3 - 5()

Aspect: Variable()

Soil Characteristics

Organic Thickness:

Humus Form: MULL()

Surface Texture: L()

Effective Texture: CL(), L(), LS()

Depth to Mottles/Gley: Not Applicable()

Soil Drainage: Rapidly drained(), Well drained()

Parent Material: FL(), GF(), GL()

Soil Subgroup: O MB(), BL SZ(), BL SS(), BL SO()

Soil Type:

Plant Community Types (n)

PPA8 Sedge-Western porcupinegrass-Intermediate oatgrass (2)

PPC6 Sedge-Low forb (39)

PPC8 Kentucky bluegrass/Low Forb (14)

14.1.1 PPA8. Sedge-Western porcupinegrass-Intermediate oatgrass

(*Carex spp.-Stipa curtisetata-Danthonia intermedia*)

n=2 A climax community of open grasslands of the uplands. Sedge and western porcupine grass are strongly codominate with intermediate oat grass often present. Northern bedstraw, smooth aster and common yarrow are also common. Some shrubs can be present but usually in small amounts. This community will shift to a PPA10 Shrub/Western porcupine grass-Sedge community with shrub encroachment through lack of grazing or fire. With grazing pressure it will succeed to a PPC6 community and with prolonged heavy grazing a PPC8 community. This community differs from PPA2 by site location (upland vs slopes) and the usual occurrence of intermediate oatgrass. This community also responds differently than PPA2 under grazing pressure, due to its moister soil conditions.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: e upland solonchetic/grassland slope (mesic)

Ecosite Phase: e1 western porcupine grass

Plant Composition				Environmental Variables			
	Mean	Range	Const.				
Shrub				Moisture Regime: MESIC()			
PRICKLY ROSE (<i>Rosa acicularis</i>)	4	1-6	100	Nutrient Regime: MESOTROPHIC(), PERMESOTROPHIC()			
SASKATOON (<i>Amelanchier alnifolia</i>)	7	5-8	100	Elevation (range): 642(-) M			
SNOWBERRY (BUCKBRUSH) (<i>Symphoricarpos occidentalis</i>)	4	0-7	50	Slope: 0 - 0.5(), 0.5 - 2.5()			
Forb				Aspect: Variable()			
ALPINE HEDYSARUM (<i>Hedysarum alpinum</i>)	2	0-3	50	Soil Drainage: Well drained()			
BASTARD TOADFLAX (<i>Comandra umbellata</i>)	6	1-11	100	Soil Subgroup:			
COMMON YARROW (<i>Achillea millefolium</i>)	8	3-11	100	Soil Series:			
CREAM-COLORED VETCHLING (<i>Lathyrus ochroleucus</i>)	4	0-7	50	Soil Correlation:			
NORTHERN BEDSTRAW (<i>Galium boreale</i>)	10	9-11	100	Range Site Category:			
PASTURE SAGEWORT (<i>Artemisia frigida</i>)	4	0-7	50	Ecological Status Score: 24			
PRAIRIE CROCUS (<i>Anemone patens</i>)	7	0-13	50	Soil Exposure			
SMOOTH ASTER (<i>Aster laevis</i>)	13	6-19	100	Mean			
STAR-FLOWERED SOLOMON'S-SEAL (<i>Smilacina stellata</i>)	8	0-15	50	Min			
WILD VETCH (<i>Vicia americana</i>)	2	0-4	50	Max			
Grass				%			
AWNLESS BROME (<i>Bromus inermis</i>)	4	0-8	50	Comment:			
INTERMEDIATE OAT GRASS (<i>Danthonia intermedia</i>)	11	0-21	50	Forage Production (kg/ha) n=			
JUNE GRASS (<i>Koeleria macrantha</i>)	2	0-4	50	Mean			
SEDGE SPECIES (<i>Carex spp.</i>)	65	37-92	100	Min			
SLENDER WHEAT GRASS (<i>Agropyron trachycaulum</i>)	2	1-3	100	Max			
WESTERN PORCUPINE GRASS (<i>Stipa curtisetata</i>)	54	35-73	100	Forb			
WESTERN WHEAT GRASS (<i>Agropyron smithii</i>)	3	0-6	50	Grass			
				Shrub			
				Tree			
				Undifferentiated			
				Total			
				Ecologically Sustainable Stocking Rate			
				0.67 (1.01-0.58) HA/AUM or 0.60 (0.40-0.70) AUM/AC			

14.1.2

PPC6. Sedge-Low forb

(Carex spp.-Low Forb)

n=39 An upland grassland community that occurs under moderate grazing pressure, or where grazing was once heavy but then have undergone a period of prolonged rest. This community can be incredibly diverse in species. Western porcupine grass levels have decreased and sedge dominates. Forb diversity is still very high and northern bedstraw and yarrow are common. Intermediate oat grass cover decreases as grazing increases and soil moisture decreases with reduced litter coverage. Kentucky bluegrass, dandelion and wild strawberry cover has increased with increased grazing pressure. This community has developed from a PPA8 community type and will undergo further change to a PPC8 with continued heavy grazing. This is the plant community that is now found on most of the remnant upland native grasslands.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: e upland solonchic/grassland slope (mesic)

Ecosite Phase: e1 western porcupine grass

Plant Composition	Canopy Cover (%)			Environmental Variables		
	Mean	Range	Const.			
Shrub				Moisture Regime: MESIC()		
PRICKLY ROSE (<i>Rosa acicularis</i>)	4	0-12	87	Nutrient Regime: MESOTROPHIC(), PERMESOTROPHIC()		
SASKATOON (<i>Amelanchier alnifolia</i>)	3	0-8	72	Elevation (range): 600(-) M		
SNOWBERRY (BUCKBRUSH) (<i>Symphoricarpos occidentalis</i>)	2	0-10	49	Slope: 0.5 - 2.5(), 3 - 5()		
Forb				Aspect: Variable()		
BROAD-LEAVED EVERLASTING (<i>Antennaria neglecta</i>)	2	0-12	33	Soil Drainage: Well drained()		
COMMON DANDELION (<i>Taraxacum officinale</i>)	5	0-18	72	Soil Subgroup: B.SZ, B.SS, BL.SO		
PASTURE SAGEWORT (<i>Artemisia frigida</i>)	1	0-8	46	Soil Series:		
PRAIRIE CROCUS (<i>Anemone patens</i>)	4	0-14	74	Soil Correlation:		
THREE-FLOWERED AVENS (<i>Geum triflorum</i>)	8	0-21	87	Range Site Category:		
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	3	0-20	36	Ecological Status Score: 9		
Grass				Soil Exposure		
INTERMEDIATE OAT GRASS (<i>Danthonia intermedia</i>)	7	0-40	72	Mean	Min	Max
JUNE GRASS (<i>Koeleria macrantha</i>)	4	0-17	90	%:		
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)	4	0-13	85	Comment:		
SEDGE SPECIES (<i>Carex spp.</i>)	27	3-59	100	Forage Production (kg/ha) n=		
SLENDER WHEAT GRASS (<i>Agropyron trachycaulum</i>)	4	0-26	85	Mean	Min	Max
WESTERN PORCUPINE GRASS (<i>Stipa curtisetia</i>)	4	0-19	80	Forb		
WESTERN WHEAT GRASS (<i>Agropyron smithii</i>)	3	0-18	74	Grass		
				Shrub		
				Tree		
				Undifferentiated	950	
				Total	950	0
						0
				Ecologically Sustainable Stocking Rate		
				1.35 (2.02-1.01) HA/AUM or 0.30 (0.20-0.40) AUM/AC		

PPC8. Kentucky bluegrass/Low Forb

(*Poa pratensis*/Low Forb)

n=14 A grassland community that occurs under moderate to heavy grazing and can be found on the uplands or in moist draws and lower slope positions of the river slopes. Kentucky bluegrass dominates. Grazing resistant species like wild strawberry, common yarrow and dandelion have increased. Most palatable species like western porcupine grass and intermediate oat grass have decreased in abundance and cover due to heavy grazing. As grazing pressure increases, Kentucky bluegrass levels will decrease and dandelion and strawberry levels will increase. It is unexpected that this plant community will recover back to the reference grassland community (PPA8). This community may shift to PPC4 Rose-Saskatoon/Kentucky bluegrass with shrub encroachment and lack of fire.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: e upland solonetzic/grassland slope (mesic)

Ecosite Phase: e1 western porcupine grass

Plant Composition	Canopy Cover (%)			Environmental Variables			
	Mean	Range	Const.				
Shrub				Moisture Regime: MESIC()			
PRICKLY ROSE (<i>Rosa acicularis</i>)	2	0-8	79	Nutrient Regime: MESOTROPHIC(), PERMESOTROPHIC()			
SASKATOON (<i>Amelanchier alnifolia</i>)	3	0-12	64	Elevation (range): 600(-) M			
Forb				Slope: 0 - 0.5()			
COMMON DANDELION (<i>Taraxacum officinale</i>)	11	0-27	93	Aspect:			
COMMON YARROW (<i>Achillea millefolium</i>)	10	1-21	100	Soil Drainage: Well drained()			
FIELD MOUSE-EAR CHICKWEED (<i>Cerastium arvense</i>)	1	0-5	71	Soil Subgroup:			
GRACEFUL CINQUEFOIL (<i>Potentilla gracilis</i>)	2	0-12	57	Soil Series:			
NORTHERN BEDSTRAW (<i>Galium boreale</i>)	8	0-20	86	Soil Correlation:			
THREE-FLOWERED AVENS (<i>Geum triflorum</i>)	9	0-47	57	Range Site Category:			
VEINY MEADOW RUE (<i>Thalictrum venulosum</i>)	4	0-27	43	Ecological Status Score: 0			
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	7	0-35	71	Soil Exposure			
Grass				Mean	Min	Max	
AWNLESS BROME (<i>Bromus inermis</i>)	7	0-46	43	%:			
INTERMEDIATE OAT GRASS (<i>Danthonia intermedia</i>)	3	0-9	57	Comment:			
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)	34	10-60	100	Forage Production (kg/ha) n=			
SEDGE SPECIES (<i>Carex spp.</i>)	12	0-24	100	Mean	Min	Max	
SLENDER WHEAT GRASS (<i>Agropyron trachycaulum</i>)	3	0-6	93	Forb			
WESTERN PORCUPINE GRASS (<i>Stipa curtiseta</i>)	3	0-20	50	Grass			
				Shrub			
				Tree			
				Undifferentiated	850		
				Total	850	0	0
Ecologically Sustainable Stocking Rate							
1.01 (1.35-0.81) HA/AUM or 0.40 (0.30-0.50) AUM/AC							

14.2 e2 intermediate oat grass-slender wheat grass (n=7)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: upland solonchic/grassland slope (mesic)

Characteristic Species

Shrub

- [5] Snowberry (buckbrush)
- [1] Saskatoon
- [1] prickly rose

Forb

- [14] Veiny meadow rue
- [7] wild strawberry
- [4] common yarrow
- [3] common dandelion
- [2] wild vetch
- [1] northern bedstraw

Grass

- [14] slender wheat grass*
- [13] sedge species*
- [11] purple oat grass*
- [5] Kentucky bluegrass
- [4] Intermediate oat grass
- [2] June grass

*Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: MESIC()

Nutrient Regime: MESOTROPHIC(), PERMESOTROPHIC()

Topographic Position:

Slope: 3 - 5()

Aspect:

Soil Characteristics

Organic Thickness: 0 - 5 cm(90)

Humus Form: MULL(90)

Surface Texture: L(70), SiCL(30)

Effective Texture: C(70), CL(30)

Depth to Mottles/Gley: None()

Soil Drainage: Well drained(70), Moderate well drain(30)

Parent Material: L(90)

Soil Subgroup: DB.SS(10), BL.SS(10), BL.SO(10), DG.SO(40)

Soil Type:

Plant Community Types (n)

PPA15 Purple oat grass-Sedge-Intermediate oat grass (5)

PPA16 Veiny meadow rue/Slender wheat grass-F. brome (2)

14.2.1 PPA15. Purple oat grass-Sedge-Intermediate oat grass (*Schizachne purpurascens*-*Carex* spp.-*Danthonia intermedia*)

n=5 This community type is the same as DMA4 in the Dry Mixedwood Guide (Willoughby et al. 2006). It appears to be characteristic of dry grassy meadows on dark colored Solonchic soils and gentle to level areas throughout the Dry Mixedwood subregion. It also occurs in the transition zone from grassland to treed areas in river valleys. This community type is moister than the Sedge-Western porcupine grass PPA8 dominated community type. The presence of snowberry and veiny meadow rue distinguish this community type from the drier upslope community.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: e upland solonchic/grassland slope (mesic)

Ecosite Phase: e2 intermediate oat grass-slender wheat grass

Plant Composition	Canopy Cover (%)			Environmental Variables			
	Mean	Range	Const.				
Shrub				Moisture Regime: MESIC()			
PRICKLY ROSE (<i>Rosa acicularis</i>)	2	0-10	60	Nutrient Regime: MESOTROPIC()			
SASKATOON (<i>Amelanchier alnifolia</i>)	1	0-3	60	Elevation (range): 584(576-606) M			
SNOWBERRY (BUCKBRUSH) (<i>Symphoricarpos occidentalis</i>)	10	0-36	80	Slope: 0 - 0.5(), 0.5 - 2.5(), 3 - 5()			
Forb				Aspect: Southerly(), Westerly()			
COMMON DANDELION (<i>Taraxacum officinale</i>)	6	0-20	80	Soil Drainage: Well drained()			
COMMON YARROW (<i>Achillea millefolium</i>)	6	0-12	80	Soil Subgroup:			
VEINY MEADOW RUE (<i>Thalictrum venulosum</i>)	4	0-8	80	Soil Series:			
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	12	1-29	100	Soil Correlation:			
WILD VETCH (<i>Vicia americana</i>)	4	0-9	80	Range Site Category:			
Grass				Ecological Status Score: 16			
INTERMEDIATE OAT GRASS (<i>Danthonia intermedia</i>)	8	0-28	60	Soil Exposure			
JUNE GRASS (<i>Koeleria macrantha</i>)	4	0-6	80	Mean	Min	Max	
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)	10	1-40	100	%			
PRAIRIE SEDGE (<i>Carex prairea</i>)	7	0-15	60	Comment:			
PURPLE OAT GRASS (<i>Schizachne purpurascens</i>)	21	4-34	100	Forage Production (kg/ha) n=			
SLENDER WHEAT GRASS (<i>Agropyron trachycaulum</i>)	10	2-18	100	Forb	818	500	1192
				Grass	1463	626	2578
				Shrub	227		606
				Tree			
				Total	2508	1126	4376
Ecologically Sustainable Stocking Rate							
0.58 (0.81-0.50) HA/AUM or 0.70 (0.50-0.81) AUM/AC							

14.2.2 PPA16. Veiny meadow rue/Slender wheat grass-F. brome

(*Thalictrum venulosum*/Agropyron trachycaulum-Bromus ciliatus)

n=2 This community is the same as DMA4a in the Dry Mixedwood Guide (Willoughby et al. 2006). It appears to be characteristic of moist grassy meadows on dark colored Chernozemic soils and gentle to level areas throughout the region. This community type is likely associated with the large tracts of prairie vegetation described adjacent to rivers and creeks. This community type appears to be richer than the Sedge-California oat grass-Western porcupine grass PPA8 and does not likely have the saline influence of the purple oatgrass dominated community PPA15 previously described. The soils on this community are described as Chernozemic and the parent material is fluvial in origin. These sites are very productive.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: e upland solonchetic/grassland slope (mesic)

Ecosite Phase: e2 intermediate oat grass-slender wheat grass

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Tree				Moisture Regime: MESIC()
WHITE SPRUCE (<i>Picea glauca</i>)	1	0-1	50	Nutrient Regime: MESOTROPHIC(), PERMESOTROPHIC()
Forb				Elevation (range): 530(472-587) M
CANADA GOLDENROD (<i>Solidago canadensis</i>)	15	0-30	50	Slope: 0 - 0.5()
COMMON FIREWEED (<i>Epilobium angustifolium</i>)	2	1-2	100	Aspect:
COMMON YARROW (<i>Achillea millefolium</i>)	1	0-2	50	Soil Drainage: Moderate well drain()
NORTHERN BEDSTRAW (<i>Galium boreale</i>)	2	0-3	50	Soil Subgroup:
TALL LUNGWORT (<i>Mertensia paniculata</i>)	9	2-15	100	Soil Series:
VEINY MEADOW RUE (<i>Thalictrum venulosum</i>)	23	15-30	100	Soil Correlation:
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	1	0-1	50	Range Site Category:
YELLOW AVENS (<i>Geum aleppicum</i>)	2	1-2	100	Ecological Status Score: 24
Grass				Soil Exposure
BLUEJOINT (<i>Calamagrostis canadensis</i>)	1	0-2	50	Mean Min Max
FRINGED BROME (<i>Bromus ciliatus</i>)	15	10-20	100	%:
SLENDER WHEAT GRASS (<i>Agropyron trachycaulum</i>)	18	15-20	100	Comment:
WHITE-SCALED SEDGE (<i>Carex xerantica</i>)	10	10-10	100	Forage Production (kg/ha) n=
				Mean Min Max
				Forb
				Grass
				Shrub
				Tree
				Undifferentiated
				Total
				2600
				2600 0 0

Ecologically Sustainable Stocking Rate

0.67 (0.81-0.58) HA/AUM or 0.60 (0.50-0.70) AUM/AC

14.3 e3 shrubland (n=42)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: upland solonchalc/grassland slope (mesic)

Characteristic Species

Tree

- [1] aspen

Shrub

- [10] prickly rose
- [10] saskatoon
- [10] Snowberry (buckbrush)
- [3] silverberry
- [1] Canada buffaloberry

Forb

- [9] northern bedstraw
- [7] common yarrow
- [5] wild strawberry
- [3] common dandelion

Grass

- [22] sedge species
- [7] Kentucky bluegrass
- [5] slender wheat grass
- [2] western porcupine grass
- [2] purple oat grass
- [2] June grass
- [1] hairy wild rye

* Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: MESIC()

Nutrient Regime: MESOTROPHIC(), PERMESOTROPHIC()

Topographic Position:

Slope:

Aspect:

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage: Well drained()

Parent Material:

Soil Subgroup:

Soil Type:

Plant Community Types (n)

- | | |
|-------|---|
| PPA6 | Saskatoon-Rose/Sedge (14) |
| PPA7 | Silverberry-Saskatoon/Sedge (7) |
| PPA5 | Snowberry-Saskatoon/Sedge (9) |
| PPA10 | Shrub/Western porcupine grass-Sedge (2) |
| PPC4 | Rose-Saskatoon/Kentucky bluegrass (6) |
| PPC10 | Snowberry/Kentucky bluegrass (4) |

14.3.1

PPA10. Shrub/Western porcupine grass-Sedge

(*Shrub/Stipa curtisetata-Carex Spp.*)

n=2 An upland grassland community that has had limited disturbance and is converting to a shrubland with an increase in rose, Saskatoon and snowberry. Litter levels have built up and soil moisture increased. Northern bedstraw, sedge and western porcupine grass co-dominate. Grass species that require moister sites, like intermediate oat grass and slender wheat grass, have increased in cover. Periodic burning of this community type could allow it to shift back to the reference plant community of PPA8-sedge-western porcupine grass.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: e upland solonchetic/grassland slope (mesic)

Ecosite Phase: e3 shrubland

Plant Composition				Environmental Variables			
Canopy Cover (%)							
Mean				Range			
Const.							
Shrub				Moisture Regime: MESIC()			
COMMON BEARBERRY (<i>Arctostaphylos uva-ursi</i>)				Nutrient Regime: MESOTROPHIC(), PERMESOTROPHIC()			
PRICKLY ROSE (<i>Rosa aciculans</i>)				Elevation (range): (-) M			
SASKATOON (<i>Amelanchier alnifolia</i>)				Slope:			
SILVERBERRY (<i>Elaeagnus commutata</i>)				Aspect:			
SNOWBERRY (BUCKBRUSH) (<i>Symphoricarpos occidentalis</i>)				Soil Drainage: Well drained()			
WILD RED RASPBERRY (<i>Rubus idaeus</i>)				Soil Subgroup:			
Forb				Soil Series:			
COMMON YARROW (<i>Achillea millefolium</i>)				Soil Correlation:			
NORTHERN BEDSTRAW (<i>Galium boreale</i>)				Range Site Category:			
SMOOTH ASTER (<i>Aster laevis</i>)				Ecological Status Score: 24			
WILD VETCH (<i>Vicia americana</i>)				Soil Exposure			
Grass				Mean			
FRINGED BROME (<i>Bromus ciliatus</i>)				Min			
INTERMEDIATE OAT GRASS (<i>Danthonia intermedia</i>)				Max			
NORTHERN REED GRASS (<i>Calamagrostis inexpansa</i>)				%			
ROUGH HAIR GRASS (<i>Agrostis scabra</i>)				Comment:			
SEDGE SPECIES (<i>Carex spp.</i>)				Forage Production (kg/ha) n=			
SLENDER WHEAT GRASS (<i>Agropyron trachycaulum</i>)				Mean			
WESTERN PORCUPINE GRASS (<i>Stipa curtisetata</i>)				Min			
				Max			
				Forb			
				Grass			
				Shrub			
				Tree			
				Undifferentiated			
				Total			
				1450			
				1450			
				0			
				0			
				Ecologically Sustainable Stocking Rate			
				1.35 (2.02-1.01) HA/AUM or 0.30 (0.20-0.40) AUM/AC			

14.3.2

PPA5. Snowberry-Saskatoon/Sedge

(*Symphoricarpos occidentalis*-*Amelanchier alnifolia*/*Carex spp.*)

n=9 . A shrubby community with high species diversity dominated by snowberry and sedge. This community type can be found on upland sites as well as moister draws and lower slope positions of river valleys. Saskatoon and prickly rose are usually, but not always present and sometimes can occur in large amounts. Without grazing, litter buildup and shrub encroachment will lead to increased soil moisture and a further shift towards species that prefer moister sites (shrubs, northern bedstraw, slender wheat grass).

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: e upland solonchic/grassland slope (mesic)

Ecosite Phase: e3 shrubland

Plant Composition		Canopy Cover (%)		Environmental Variables	
		Mean	Range	Const.	
Tree					
ASPEN					Moisture Regime: MESIC()
(<i>Populus tremuloides</i>)	2	0-10	33		Nutrient Regime: MESOTROPHIC(), PERMESOTROPHIC()
Shrub					
CANADA BUFFALOBERRY					Elevation (range): (-) M
(<i>Shepherdia canadensis</i>)	1	0-2	67		Slope:
PRICKLY ROSE					Aspect:
(<i>Rosa acicularis</i>)	11	0-35	56		Soil Drainage: Well drained()
SASKATOON					Soil Subgroup:
(<i>Amelanchier alnifolia</i>)	17	0-35	78		Soil Series:
SNOWBERRY (BUCKBRUSH)					Soil Correlation:
(<i>Symphoricarpos occidentalis</i>)	30	15-74	100		Range Site Category:
Forb					
COMMON YARROW					Ecological Status Score: 16
(<i>Achillea millefolium</i>)	4	0-13	89		
NORTHERN BEDSTRAW					
(<i>Galium boreale</i>)	12	0-33	89		
PASTURE SAGEWORT					
(<i>Artemisia frigida</i>)	2	0-9	44		
SMALL-LEAVED EVERLASTING					
(<i>Antennaria parvifolia</i>)	11	0-43	67		
SMOOTH ASTER					
(<i>Aster laevis</i>)	3	0-24	44		
THREE-FLOWED AVENS					
(<i>Geum triflorum</i>)	5	0-24	44		
WILD STRAWBERRY					
(<i>Fragaria virginiana</i>)	8	0-32	67		
WILD VETCH					
(<i>Vicia americana</i>)	5	0-12	78		
Grass					
JUNE GRASS					
(<i>Koeleria macrantha</i>)	2	0-4	78		
KENTUCKY BLUEGRASS					
(<i>Poa pratensis</i>)	3	0-9	67		
ROCKY MOUNTAIN FESCUE					
(<i>Festuca saximontana</i>)	2	0-7	67		
SEDGE SPECIES					
(<i>Carex spp.</i>)	35	10-62	100		
SLENDER WHEAT GRASS					
(<i>Agropyron trachycaulum</i>)	6	0-19	89		
WESTERN PORCUPINE GRASS					
(<i>Stipa curtiseta</i>)	2	0-8	33		
WESTERN WHEAT GRASS					
(<i>Agropyron smithii</i>)	1	0-2	44		

Soil Exposure

Mean Min Max

%:

Comment:

Forage Production (kg/ha) n=

Mean Min Max

Forb
Grass
Shrub
Tree

Undifferentiated

1250

Total

1250 0 0

Ecologically Sustainable Stocking Rate

1.35 (2.02-1.01) HA/AUM or 0.30 (0.20-0.40) AUM/AC

14.3.3

PPA6. Saskatoon-Rose/Sedge (*Amelanchier alnifolia*-*Rosa acicularis*/*Carex* Spp.)

n=14 This community is similar to the DMA7-Saskatoon-Snowberry/Hairy wild rye community of the Dry Mixedwood Guide (Willeughity et al. 2006). It is typically found in small shrubby openings within aspen forests on southwest facing slopes and level areas. Aspen encroachment into these openings is common. These sites have well developed Luvisolic soils with colluvial, glacialfluvial and glacial lacustrine parent materials. It is likely these shrubby openings are drier than the surrounding forest, which favours the growth of shrubs over trees. Forage productivity on these sites is only moderate. These sites are also heavily utilized by wildlife. As a result caution should be used when managing these sites for domestic livestock grazing in order to prevent overutilization. Saskatoon, prickly rose and sedge are codominant species. Hairy wild rye, purple oat grass, western porcupine grass and slender wheat grass are usually found on these sites. Yarrow, wild strawberry and northern bedstraw are common forbs.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: e upland solonchic/grassland slope (mesic)

Ecosite Phase: e3 shrubland

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Tree				Moisture Regime: MESIC()
ASPEN (<i>Populus tremuloides</i>)	1	0-5	29	Nutrient Regime: MESOTROPHIC()
Shrub				Elevation (range): 460(343-606) M
CANADA BUFFALOBERRY (<i>Shepherdia canadensis</i>)	2	0-10	50	Slope: 0 - 0.5(), 0.5 - 2.5(), 3 - 5(), 6 - 9()
PRICKLY ROSE (<i>Rosa acicularis</i>)	15	3-35	100	Aspect: Variable()
SASKATOON (<i>Amelanchier alnifolia</i>)	17	2-50	100	Soil Drainage: Well drained()
SNOWBERRY (BUCKBRUSH) (<i>Symphoricarpos occidentalis</i>)	3	0-15	57	Soil Subgroup:
Forb				Soil Series:
COMMON DANDELION (<i>Taraxacum officinale</i>)	6	0-28	71	Soil Correlation:
COMMON YARROW (<i>Achillea millefolium</i>)	11	1-27	100	Range Site Category:
LINDLEY'S ASTER (<i>Aster ciliolatus</i>)	5	0-17	71	Ecological Status Score: 24
NORTHERN BEDSTRAW (<i>Galium boreale</i>)	16	1-40	100	Soil Exposure
VEINY MEADOW RUE (<i>Thalictrum venulosum</i>)	5	0-14	71	Mean
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	9	0-43	86	Min
Grass				Max
HAIRY WILD RYE (<i>Elymus innovatus</i>)	6	0-20	43	%:
INTERMEDIATE OAT GRASS (<i>Danthonia intermedia</i>)	2	0-10	43	Comment:
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)	2	0-7	64	Forage Production (kg/ha) n=
PURPLE OAT GRASS (<i>Schizachne purpurascens</i>)	5	0-26	43	Mean
SEDGE SPECIES (<i>Carex spp.</i>)	27	0-58	93	Min
SLENDER WHEAT GRASS (<i>Agropyron trachycaulum</i>)	4	0-19	93	Max
WESTERN PORCUPINE GRASS (<i>Stipa curtisetla</i>)	3	0-15	57	Forb
				Grass
				Shrub
				Tree
				Undifferentiated
				Total
				670
				670
				0
				0

14.3.4

PPA7. Silverberry-Saskatoon/Sedge (*Elaeagnus commutata*-*Amelanchier alnifolia*/*Carex* spp.)

n=7 This community is found in the transition zone between aspen dominated communities and native grasslands. In the absence of disturbance, aspen will likely invade these sites. These sites can be found on the uplands or in moister draws and lower slope positions of the river slopes. Heavy grazing pressure on this community type can result in the invasion of smooth brome, Kentucky bluegrass and dandelion. Sites are typically moist as evidenced by the strong presence of northern bedstraw and slender wheat grass. Silverberry and Saskatoon dominate this community. Prickly rose and snowberry are other common shrubs.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: e upland solonchic/grassland slope (mesic)

Ecosite Phase: e3 shrubland

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Shrub				Moisture Regime: MESIC()
PRICKLY ROSE (<i>Rosa acicularis</i>)	10	2-17	100	Nutrient Regime: MESOTROPHIC(), PERMESOTROPHIC()
SASKATOON (<i>Amelanchier alnifolia</i>)	15	0-50	86	Elevation (range): (-) M
SILVERBERRY (<i>Elaeagnus commutata</i>)	15	3-42	100	Slope: 3 - 5()
SNOWBERRY (BUCKBRUSH) (<i>Symphoricarpos occidentalis</i>)	8	0-15	86	Aspect: Southerly()
Forb				Soil Drainage: Well drained(), Moderate well drain()
COMMON DANDELION (<i>Taraxacum officinale</i>)	4	0-11	71	Soil Subgroup:
COMMON YARROW (<i>Achillea millefolium</i>)	9	0-16	86	Soil Series:
LINDLEY'S ASTER (<i>Aster ciliolatus</i>)	5	0-24	71	Soil Correlation:
NORTHERN BEDSTRAW (<i>Galium boreale</i>)	12	1-27	100	Range Site Category:
THREE-FLOWERED AVENS (<i>Geum triflorum</i>)	10	0-57	71	Ecological Status Score: 24
WILD VETCH (<i>Vicia americana</i>)	4	0-7	86	Soil Exposure
Grass				Mean Min Max
JUNE GRASS (<i>Koeleria macrantha</i>)	1	0-3	71	%:
NORTHERN WHEAT GRASS (<i>Agropyron dasystachyum</i>)	4	1-8	100	Comment:
SEDGE SPECIES (<i>Carex</i> spp.)	35	7-73	100	Forage Production (kg/ha) n=
SLENDER WHEAT GRASS (<i>Agropyron trachycaulum</i>)	7	1-17	100	Mean Min Max
WESTERN PORCUPINE GRASS (<i>Stipa curtisetia</i>)	3	0-10	71	Forb
				Grass
				Shrub
				Tree
				Undifferentiated
				1800
				Total
				1800
				0
				0
				Ecologically Sustainable Stocking Rate
				0.81 (1.01-0.58) HA/AUM or 0.50 (0.40-0.70) AUM/AC

14.3.5

PPC10. Snowberry/Kentucky bluegrass

(*Symphoricarpos occidentalis*/*Poa pratensis*)

n=4 A grazing impacted shrub community that is codominated by snowberry and a diverse mixture of forbs and grasses. Western porcupine grass and intermediate oat grass are in small coverage. This community was described from an unusual site near Worsley in close proximity to a saline area.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: e upland solonchalc/grassland slope (mesic)

Ecosite Phase: e3 shrubland

Plant Composition		Canopy Cover (%)		Environmental Variables				
		Mean	Range	Const.				
Shrub					Moisture Regime: MESIC()			
PRICKLY ROSE					Nutrient Regime: MESOTROPHIC(). PERMESOTROPHIC()			
(<i>Rosa acicularis</i>)	2	1-4	100		Elevation (range): (-) M			
SNOWBERRY (BUCKBRUSH)					Slope:			
(<i>Symphoricarpos occidentalis</i>)	16	8-25	100		Aspect:			
Forb					Soil Drainage: Well drained()			
COMMON YARROW					Soil Subgroup:			
(<i>Achillea millefolium</i>)	10	9-11	100		Soil Series:			
GRACEFUL CINQUEFOIL					Soil Correlation:			
(<i>Potentilla gracilis</i>)	5	2-7	100		Range Site Category:			
NORTHERN BEDSTRAW					Ecological Status Score: 9			
(<i>Galium boreale</i>)	5	2-6	100					
SLENDER BLUE BEARDTONGUE					Soil Exposure			
(<i>Penstemon procerus</i>)	2	1-3	100		Mean	Min	Max	
SMOOTH ASTER					%			
(<i>Aster laevis</i>)	3	0-4	75		Comment:			
THREE-FLOWERED AVENS					Forage Production (kg/ha) n=			
(<i>Geum triflorum</i>)	2	1-2	100		Mean	Min	Max	
VEINY MEADOW RUE								
(<i>Thalictrum venulosum</i>)	4	3-6	100					
WILD STRAWBERRY								
(<i>Fragaria virginiana</i>)	3	1-5	100					
Grass								
FRINGED BROME					Forb			
(<i>Bromus ciliatus</i>)	3	1-6	100		Grass			
INTERMEDIATE OAT GRASS					Shrub			
(<i>Danthonia intermedia</i>)	4	2-4	100		Tree			
JUNE GRASS					Undifferentiated	2000		
(<i>Koeleria macrantha</i>)	3	0-8	75		Total	2000	0	
KENTUCKY BLUEGRASS							0	
(<i>Poa pratensis</i>)	7	2-12	100					
PURPLE OAT GRASS					Ecologically Sustainable Stocking Rate			
(<i>Schizachne purpurascens</i>)	5	0-10	100		0.58 (0.81-0.50) HA/AUM or 0.70 (0.50-0.81) AUM/AC			
SEDGE SPECIES								
(<i>Carex spp.</i>)	8	7-9	100					
SLENDER WHEAT GRASS								
(<i>Agropyron trachycaulum</i>)	8	1-14	100					

14.3.6

PPC4. Rose-Saskatoon/Kentucky bluegrass

(*Rosa acicularis*-*Amelanchier alnifolia*/*Poa pratensis*)

n=6 This is a grazing impacted shrubland community as evidenced by the large presence of grazing resistant species like wild strawberry, dandelion and Kentucky bluegrass. This community can be found on the uplands and in the moister draws and lower slope positions of the river slopes. Prickly rose, sedge and Kentucky bluegrass codominate this community and aspen has started to encroach. With Kentucky bluegrass well established along with the shrubs, it is unlikely that this community will revert back to the reference plant community.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: e upland solonchetic/grassland slope (mesic)

Ecosite Phase: e3 shrubland

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Tree				Moisture Regime: MESIC()
ASPEN (<i>Populus tremuloides</i>)	2	0-7	50	Nutrient Regime: MESOTROPHIC(), PERMESOTROPHIC()
Shrub				Elevation (range): (-) M
PRICKLY ROSE (<i>Rosa acicularis</i>)	19	6-25	100	Slope:
SASKATOON (<i>Amelanchier alnifolia</i>)	12	1-22	100	Aspect:
Forb				Soil Drainage: Well drained(), Moderate well drain()
BASTARD TOADFLAX (<i>Comandra umbellata</i>)	8	0-19	67	Soil Subgroup:
COMMON DANDELION (<i>Taraxacum officinale</i>)	6	0-14	83	Soil Series:
COMMON YARROW (<i>Achillea millefolium</i>)	7	0-12	83	Soil Correlation:
NORTHERN BEDSTRAW (<i>Galium boreale</i>)	9	0-29	83	Range Site Category:
SMOOTH ASTER (<i>Aster laevis</i>)	4	1-4	100	Ecological Status Score: 0
THREE-FLOWERED AVENS (<i>Geum triflorum</i>)	8	0-31	83	Soil Exposure
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	7	0-18	67	Mean Min Max
Grass				%:
JUNE GRASS (<i>Koeleria macrantha</i>)	5	1-13	100	Comment:
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)	31	13-57	100	Forage Production (kg/ha) n=
SEDGE SPECIES (<i>Carex spp.</i>)	26	3-35	100	Mean Min Max
SLENDER WHEAT GRASS (<i>Agropyron trachycaulum</i>)	7	0-13	83	Forb
WESTERN PORCUPINE GRASS (<i>Stipa curtisetata</i>)	5	0-12	67	Grass
				Shrub
				Tree
				Undifferentiated
				Total
				650
				650 0 0
				Ecologically Sustainable Stocking Rate
				0.67 (1.01-0.50) HA/AUM or 0.60 (0.40-0.81) AUM/AC

14.4 e4 salt grass (n=1)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: upland solonchic/grassland slope (mesic)

Characteristic Species

Forb

- [7] pasture sagewort
- [3] gumweed
- [3] bastard toadflax

Grass

- [17] June grass
- [15] blunt sedge
- [9] salt grass
- [8] western porcupine grass
- [5] northern wheat grass

*Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: MESIC(), SUBHYGRIC()

Nutrient Regime: SUBMESOTROPHIC(), MESOTROPHIC()

Topographic Position:

Slope:

Aspect:

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage: Moderate well drain()

Parent Material:

Soil Subgroup:

Soil Type:

Plant Community Types (n)

PPA9 Sedge-Salt grass (1)

14.4.1

PPA9. Sedge-Salt grass

(*Carex Spp.-Distichlis stricta*)

n=1 Throughout the river valleys there are seepage areas that are slightly saline. Salt tolerant species such as salt grass are indicators of these sites. These areas are not as productive as the other grassland dominated communities. These areas should likely be rated as secondary or non-use rangeland. June grass and blunt sedge codominate with salt grass, western porcupine grass and pasture sagewort are also common. Shrubs are not generally present on these areas.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: e upland solonetzic/grassland slope (mesic)

Ecosite Phase: e4 salt grass

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Forb				Moisture Regime: MESIC(), SUBHYGRIC()
BASTARD TOADFLAX (<i>Comandra umbellata</i>)	3		100	Nutrient Regime: SUBMESOTROPHIC(), MESOTROPHIC()
GUMWEED (<i>Grindelia squarrosa</i>)	3		100	Elevation (range): 610(-) M
PASTURE SAGEWORT (<i>Artemisia frigida</i>)	7		100	Slope:
PRAIRIE CROCUS (<i>Anemone patens</i>)	2		100	Aspect:
SMALL-LEAVED EVERLASTING (<i>Antennaria parvifolia</i>)	2		100	Soil Drainage: Moderate well drain()
SMOOTH FLEABANE (<i>Erigeron glabellus</i>)	2		100	Soil Subgroup:
Grass				Soil Series:
BLUNT SEDGE (<i>Carex obtusata</i>)	15		100	Soil Correlation:
JUNE GRASS (<i>Koeleria macrantha</i>)	17		100	Range Site Category:
MAT MUHLY (<i>Muhlenbergia richardsonis</i>)	2		100	Ecological Status Score: 16
NORTHERN WHEAT GRASS (<i>Agropyron dasystachyum</i>)	5		100	Soil Exposure
SALT GRASS (<i>Distichlis stricta</i>)	9		100	Mean Min Max
WESTERN PORCUPINE GRASS (<i>Stipa curtisetata</i>)	8		100	%:
				Comment:
				Forage Production (kg/ha) n=
				Mean Min Max
				Forb
				Grass
				Shrub
				Tree
				Undifferentiated
				Total
				950
				950 0 0

Ecologically Sustainable Stocking Rate

2.02 (4.05-1.35) HA/AUM or 0.20 (0.10-0.30) AUM/AC

15.0 f low-bush cranberry (mesic/medium) (n=282)

Natural Subregion: PEACE RIVER PARKLAND

General Description

The plots described in this ecological site are from the Dry Mixedwood. This ecological site generally describes site conditions that dominate the aspen, mixedwood, spruce and tamar pasture dominated communities of the Peace Parkland subregion. In the Boreal Mixedwood subregions (Beckingham and Archibald 1996) this is described as the reference ecological site, because it has mesic moisture and medium nutrient regime. Generally, these sites have moderately fine to fine textured till or glaciolacustrine parent materials.

low-bush cranberry Aw-Sw



Successional Relationships

Pioneer deciduous tree species such as aspen, balsam poplar and white birch are replaced by white spruce and balsam fir as these sites develop successional. Along with a change in canopy composition is a change in understory structure and understory species composition and abundance. This results in stands with low cover of shrub, forb and grass species and high moss cover. Increased grazing pressure on aspen dominated communities will result in a decline in tall growing species (fireweed, peavine, aster) and an increase in low growing forbs (strawberry, bunchberry, twinflower). Continued heavy grazing pressure will often lead to an increase Kentucky bluegrass, clover and dandelion.

Indicator Species

saskatoon	wild sarsaparilla
bluejoint	sedge species
beaked hazelnut	hairy wild rye
common fireweed	cream-colored vetchling
white spruce	Kentucky bluegrass
balsam poplar	aspen
choke cherry	prickly rose
wild red raspberry	Canada buffaloberry
Snowberry (buckbrush)	

Site Characteristics

Moisture Regime: MESIC(), SUBHYGRIC()

Nutrient Regime: SUBMESOTROPHIC(), MESOTROPHIC(), PERMESOTROPHIC()

Topographic Position:

Slope:

Aspect:

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage: Well drained(), Moderate well drain()

Parent Material:

Soil Subgroup:

Forage Production Summary (kg/ha)

(Refer to the Plant Community for detailed Stocking Rate Information)

	Forage Production (kg/ha)				Stocking Rate ha/aum(aum/ac)
	Grass	Forb	Shrub	Total	
f low-bush cranberry (mesic/medium)					
f1 low-bush cranberry Aw	221	447	408	1090	2.61(0.15)
PPD11 Aw/Rose/Low forb	285	339	300	924	2.70(0.15)
PPD12 Aw-Pb/Dandelion/Kentucky bluegrass				1178	4.05(0.10)
PPD13 Deciduous cutblocks and unseeded clearings	623	580	810	2013	2.02(0.20)
PPD16 Pb-Aw/Willow	130	525	155	810	2.70(0.15)
PPD6 Aw/Canada buffaloberry	112	304	346	762	2.70(0.15)
PPD7 Aw/Saskatoon	153	419	524	1096	2.02(0.20)
PPD8 Aw-Pb/Hazelnut	77	457	441	975	2.70(0.15)
PPD9 Aw/Rose/Tall forb	169	507	282	958	2.02(0.20)
f2 low-bush cranberry Aw-Sw	468	534	440	1296	4.05(0.10)
PPE2 Aw-Sw/Rose/Marsh reed grass	468	534	440	1442	4.05(0.10)
PPE4 Sw-Aw/Low bush cranberry				1150	4.05(0.10)
f3 low-bush cranberry Sw				210	40.47(0.01)
PPE5 Sw/Moss				210	40.47(0.01)
f4 low-bush cranberry Tame				2281	1.07(0.38)
PPF1 Brome-Timothy				3884	0.40(1.01)
PPF2 Creeping red fescue-Brome-Timothy				2120	0.51(0.79)
PPF3 Creeping red fescue-Kentucky bluegrass/Dandelion				2120	0.67(0.60)
PPF4 Strawberry-Dandelion-Weeds				1500	2.02(0.20)
PPF5 Rose/Creeping red fescue-Sedge				2000	0.81(0.50)
PPF6 Aw/Rose/Strawberry				2060	2.02(0.20)

15.1 f1 low-bush cranberry Aw (n=206)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: low-bush cranberry (mesic/medium)

Characteristic Species

Tree

- [42] aspen
- [7] balsam poplar

Shrub

- [12] prickly rose
- [6] beaked hazelnut*
- [4] saskatoon
- [4] Canada buffaloberry
- [4] wild red raspberry
- [2] low-bush cranberry
- [1] Salix species

Forb

- [5] wild strawberry
- [4] wild sarsaparilla
- [3] cream-colored vetchling
- [3] bunchberry
- [3] dewberry
- [1] common fireweed
- [1] twinflower
- [1] northern bedstraw

Grass

- [5] bluejoint
- [2] hairy wild rye

*Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: MESIC(), SUBHYGRIC()

Nutrient Regime: SUBMESOTROPHIC(), MESOTROPHIC(), PERMESOTROPHIC()

Topographic Position:

Slope: 0 - 0.5(), 0.5 - 2.5(), 3 - 5(), 6 - 9(), 10 - 15(), 16 - 30()

Aspect:

Soil Characteristics

Organic Thickness: 0 - 5 cm(50), 6 - 15 cm(50)

Humus Form: RAW MODER(10), MOR(90)

Surface Texture: L(10), S(10), SiL(20), SL(20)

Effective Texture: C(30), CL(20), SCL(10), SiC(20), SiCL(10)

Depth to Mottles/Gley: None(70), 0 - 25(20)

Soil Drainage: Well drained(), Moderate well drain()

Parent Material: GF(10), GL(20), M(30)

Soil Subgroup: O.GL(30), BR.GL(10), GL.GL(10)

Soil Type: SM4()

Plant Community Types (n)

PPD6	Aw/Canada buffaloberry (7)
PPD7	Aw/Saskatoon (10)
PPD8	Aw-Pb/Hazelnut (45)
PPD9	Aw/Rose/Tall forb (69)
PPD11	Aw/Rose/Low forb (58)
PPD12	Aw-Pb/Dandelion/Kentucky bluegrass (6)
PPD13	Deciduous cutblocks and unseeded clearings (4)
PPD16	Pb-Aw/Willow (7)

15.1.1

PPD11. Aw/Rose/Low forb

(*Populus tremuloides*/*Rosa acicularis*/Low forbs)

n=58 This community type is the same as DMC3 in the Dry Mixedwood Guide (Willoughby et al. 2006). It is part of the low bush cranberry ecosite described by Beckingham and Archibald (1996) and is very similar to the Aw/Rose/Tall forb community type PPD12. The difference in the community types appears to be related to the grazing pressure. The grazing pressure on the Aw/Rose/Tall forb community type appears to cause a reduction in the cover of tall growing forbs (wild sarsaparilla, fireweed, peavine, showy aster) and favours the growth of low growing forbs (bunchberry, dewberry, wintergreen, strawberry). This community type is providing a moderate amount of forage for domestic livestock.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: f low-bush cranberry (mesic/medium)

Ecosite Phase: f1 low-bush cranberry Aw

Plant Composition	Canopy Cover (%)			Environmental Variables			
	Mean	Range	Const.				
Tree				Moisture Regime: MESIC(), SUBHYGRIC()			
ASPEN				Nutrient Regime: SUBMESOTROPHIC(), PERMESOTROPHIC()			
(Populus tremuloides)	46	15-85	100	Elevation (range): 524(455-697) M			
BALSAM POPLAR				Slope: 0 - 0.5(), 3 - 5()			
(Populus balsamifera)	3	0-15	33				
Shrub				Aspect:			
PRICKLY ROSE				Soil Drainage: Well drained(), Moderate well drain()			
(Rosa acicularis)	13	1-55	100	Soil Subgroup:			
SALIX SPECIES				Soil Series:			
(Salix spp.)	2	0-20	36	Soil Correlation:			
SASKATOON				Range Site Category:			
(Amelanchier alnifolia)	1	0-11	48	Ecological Status Score: 12			
SNOWBERRY (BUCKBRUSH)							
(Symphoricarpos occidentalis)	4	0-38	85				
WILD RED RASPBERRY							
(Rubus idaeus)	5	0-20	93				
Forb							
BUNCHBERRY				Soil Exposure			
(Cornus canadensis)	5	0-22	83		Mean	Min	Max
COMMON FIREWEED				%:			
(Epilobium angustifolium)	1	0-11	42	Comment:			
COMMON PINK WINTERGREEN				Forage Production (kg/ha) n=			
(Pyrola asarifolia)	3	0-20	85		Mean	Min	Max
DEWBERRY				Forb	339	90	842
(Rubus pubescens)	3	0-30	78	Grass	285	12	996
LINDLEY'S ASTER				Shrub	300		896
(Aster ciliolatus)	2	0-12	82	Tree			
PALMATE-LEAVED COLTSFOOT				Total	924	102	2734
(Petasites palmatus)	1	0-30	53				
WILD SARSAPARILLA				Ecologically Sustainable Stocking Rate			
(Aralia nudicaulis)	1	0-9	38	2.70 (4.05-2.02) HA/AUM or 0.15 (0.10-0.20) AUM/AC			
WILD STRAWBERRY							
(Fragaria virginiana)	3	0-12	92				
Grass							
BLUEJOINT							
(Calamagrostis canadensis)	2	0-20	77				
HAIRY WILD RYE							
(Elymus innovatus)	3	0-22	73				
SLENDER WHEAT GRASS							
(Agropyron trachycaulum)	2	0-40	33				

Ecologically Sustainable Stocking Rate

2.70 (4.05-2.02) HA/AUM or 0.15 (0.10-0.20) AUM/AC

15.1.2

PPD12. Aw-Pb/Dandelion/Kentucky bluegrass

(Populus tremuloides-P.balsamifera/Taraxacum officinale/Poa pratensis)

n=6 This community is the same as DMC3a in the Dry Mixedwood Guide (Willoughby et al. 2006). It represents the Aw or Pb-Rose T. forb community that has recieved prolonged heavy grazing. This community type often occurs in relatively small isolated patches created by intensive grazing adjacent to water, salt or temporary holding areas. The species richness and diversity of native shrubs, forbs, and grass is reduced and replaced by grazing resistant clover, dandelion and Kentucky bluegrass.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: f low-bush cranberry (mesic/medium)

Ecosite Phase: f1 low-bush cranberry Aw

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Tree				Moisture Regime: MESIC(), SUBHYGRIC()
ASPEN				Nutnent Regime: MESOTROPHIC(), PERMESOTROPHIC()
(Populus tremuloides)	36	20-50	100	Elevation (range): 524(455-697) M
BALSAM POPLAR				Slope: 0 - 0.5(), 3 - 5()
(Populus balsamifera)	32	20-40	100	Aspect:
Shrub				Soil Drainage: Well drained(), Moderate well drain()
PRICKLY ROSE				Soil Subgroup:
(Rosa aciculans)	15	3-30	100	Soil Series:
SALIX SPECIES				Soil Correlation:
(Salix spp.)	2	1-3	100	Range Site Category:
SNOWBERRY (BUCKBRUSH)				Ecological Status Score: 6
(Symphoricarpos occidentalis)	7	0-20	80	
WILD RED RASPBERRY				
(Rubus idaeus)	4	0-10	80	
Forb				
BUNCHBERRY				
(Cornus canadensis)	1	0-1	50	
COMMON DANDELION				
(Taraxacum officinale)	4	1-10	100	
COMMON PINK WINTERGREEN				
(Pyrola asarifolia)	2	0-10	33	
DEWBERRY				
(Rubus pubescens)	2	0-10	83	
SHOWY ASTER				
(Aster conspicuus)	4	3-10	100	
UNDIFFERENTIATED CLOVER				
(Trifolium)	10	0-20	80	
WILD SARSAPARILLA				
(Aralia nudicaulis)	1	0-1	20	
WILD STRAWBERRY				
(Fragaria virginiana)	3	1-3	100	
Grass				
BLUEJOINT				
(Calamagrostis canadensis)	1	0-3	67	
HAIRY WILD RYE				
(Elymus innovatus)	2	0-10	50	
KENTUCKY BLUEGRASS				
(Poa pratensis)	4	0-10	83	

Soil Exposure			
Mean	Min	Max	
%:			
Comment:			
Forage Production (kg/ha) n=			
Mean	Min	Max	
			Forb
			Grass
			Shrub
			Tree
			Undifferentiated
1178			
1178	0	0	Total

Ecologically Sustainable Stocking Rate	
4.05 (4.05-2.02) H/AUM or 0.10 (0.10-0.20) AUM/AC	
The forage production amount listed is an estimate	

Ecologically Sustainable Stocking Rate

4.05 (4.05-2.02) HA/AUM or 0.10 (0.10-0.20) AUM/AC

The forage production amount listed is an estimate

15.1.3 PPD13. Deciduous cutblocks and unseeded clearings (*Populus tremuloides*)

n=4 This community type is the same as DMC10 in the Dry Mixedwood Guide (Willoughby et al. 2006). It represents deciduous cutblocks and clearings that have not been seeded to tame forage species. [Note: it is also the "best fit" for recently burnt areas that remain undescribed in the guide to date.] Marsh reed grass and strawberry initially dominated these areas. As succession occurs an understory of aspen and rose predominate. As the tree cover increases the understory species structure and diversity declines. Initially these clearings are very productive for domestic livestock until the trees grow back and limit accessibility. Care should be taken when grazing these cutblocks that the trees are not damaged and there is sufficient regrowth to regenerate the cutblock.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: f low-bush cranberry (mesic/medium)

Ecosite Phase: f1 low-bush cranberry Aw

Plant Composition		Canopy Cover (%)		Environmental Variables	
		Mean	Range	Const.	
Tree					Moisture Regime: MESIC()
ASPEN					Nutrient Regime: MESOTROPHIC()
(<i>Populus tremuloides</i>)	19	11-28	100		Elevation (range): 636(455-727) M
BALSAM POPLAR					Slope: 0 - 0.5()
(<i>Populus balsamifera</i>)	1	0-1	25		
Shrub					Aspect:
LOW-BUSH CRANBERRY					Soil Drainage: Well drained()
(<i>Viburnum edule</i>)	2	0-4	75		
PRICKLY ROSE					Soil Subgroup:
(<i>Rosa acicularis</i>)	18	9-22	100		Soil Series:
SNOWBERRY (BUCKBRUSH)					Soil Correlation:
(<i>Symphoricarpos occidentalis</i>)	3	0-11	75		Range Site Category:
WILD RED RASPBERRY					Ecological Status Score: 18
(<i>Rubus idaeus</i>)	5	0-16	50		
Forb					
DEWBERRY					
(<i>Rubus pubescens</i>)	2	0-8	50		
LINDLEY'S ASTER					Soil Exposure
(<i>Aster ciliolatus</i>)	4	0-12	75		Mean
NORTHERN BEDSTRAW					Min
(<i>Galium boreale</i>)	4	0-14	75		Max
PALMATE-LEAVED COLTSFOOT					%:
(<i>Petasites palmatus</i>)	2	0-6	25		Comment:
WILD STRAWBERRY					
(<i>Fragaria virginiana</i>)	22	8-38	100		Forage Production (kg/ha) n=
Grass					Mean
BLUEJOINT					Min
(<i>Calamagrostis canadensis</i>)	17	0-45	75		Max
					Forb
					Grass
					Shrub
					Tree
					Total

Ecologically Sustainable Stocking Rate

2.02 (4.05-1.35) HA/AUM or 0.20 (0.10-0.30) AUM/AC

15.1.4

PPD16. Pb-Aw/Willow
(*Populus balsamifera*-*P. tremuloides*/*Salix* spp.)

n=7 This community type is the same as DMC8a in the Dry Mixedwood Guide (Willoughby et al. 2006). It is typical of aspen forests adjacent to sloughs and wet meadows. The edges of the sedge meadows tend to be willow dominated. This community type represents the transition from the meadow edge into the aspen and balsam poplar dominated forest. This community type is relatively moist and nutrient rich, but the high cover of willow limits the light reaching the forest floor inhibiting the growth of understory shrubs, forbs and grass. As a result there is little forage for domestic livestock.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: f low-bush cranberry (mesic/medium)

Ecosite Phase: f1 low-bush cranberry Aw

Plant Composition		Canopy Cover (%)		Environmental Variables			
		Mean	Range	Const.			
Tree					Moisture Regime: SUBHYGRIC()		
ASPEN					Nutrient Regime: PERMESOTROPHIC()		
(Populus tremuloides)	13	0-50	57		Elevation (range): (455-606) M		
BALSAM POPLAR					Slope:		
(Populus balsamifera)	29	0-60	86		Aspect:		
WHITE BIRCH					Soil Drainage: Moderate well drain()		
(Betula papyrifera)	6	0-20	43		Soil Subgroup:		
Shrub					Soil Series:		
BRACTED HONEYSUCKLE					Soil Correlation:		
(Lonicera involucrata)	2	0-3	71		Range Site Category:		
PRICKLY ROSE					Ecological Status Score: 18		
(Rosa acicularis)	3	0-10	86		Soil Exposure		
SALIX SPECIES					Mean	Min	Max
(Salix spp.)	28	13-43	100		%:		
WILD RED RASPBERRY					Comment:		
(Rubus idaeus)	7	0-20	71		Forage Production (kg/ha) n=		
Forb					Mean	Min	Max
COMMON HORSETAIL					Forb	525	350
(Equisetum arvense)	3	0-10	86		Grass	130	260
DEWBERRY					Shrub	155	50
(Rubus pubescens)	2	0-4	86		Tree	75	150
LINDLEY'S ASTER					Total	885	400
(Aster ciliolatus)	1	0-5	33			1370	
TALL LUNGWORT							
(Mertensia paniculata)	4	0-20	86				
WILD STRAWBERRY							
(Fragaria virginiana)	2	0-5	86				
Grass							
BLUEJOINT							
(Calamagrostis canadensis)	4	1-20	100				

Soil Exposure

Mean Min Max

%:

Comment:

Forage Production (kg/ha) n=

	Mean	Min	Max
Forb	525	350	700
Grass	130		260
Shrub	155	50	260
Tree	75		150
Total	885	400	1370

Ecologically Sustainable Stocking Rate

2.70 (4.05-2.02) HA/AUM or 0.15 (0.10-0.20) AUM/AC

15.1.5

PPD6. Aw/Canada buffaloberry (*Populus tremuloides*/Shepherdia canadensis)

n=7 This community type is the same s DMC5 in the Dry Mixedwood Guide (Willoughby et al. 2006). It was found on mesic sites at higher elevations in the Saddle and Birch hills. Beckingham (1993) felt the Aw/Buffaloberry type was slightly drier and had a slightly poorer nutrient regime than the model Aw/Rose community types. This type is providing a moderate amount of forage for domestic livestock, but the drier site conditions and poorer nutrient status will limit regrowth after grazing. Buffaloberry the predominant shrub species in this community type, is generally unpalatable to livestock.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: f low-bush cranberry (mesic/medium)

Ecosite Phase: f1 low-bush cranberry Aw

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Tree				Moisture Regime: MESIC()
ASPEN				Nutrient Regime: MESOTROPHIC()
(<i>Populus tremuloides</i>)	52	30-85	100	Elevation (range): 556(455-758) M
Shrub				Slope: 0 - 0.5(), 10 - 15()
BRACTED HONEYSUCKLE				Aspect:
(<i>Lonicera involucrata</i>)	1	0-2	20	Soil Drainage: Well drained()
CANADA BUFFALOBERRY				Soil Subgroup:
(<i>Shepherdia canadensis</i>)	25	11-38	100	Soil Series:
LOW-BUSH CRANBERRY				Soil Correlation:
(<i>Viburnum edule</i>)	3	0-14	40	Range Site Category:
PRICKLY ROSE				Ecological Status Score: 18
(<i>Rosa acicularis</i>)	8	2-17	100	Soil Exposure
WILD RED RASPBERRY				Mean
(<i>Rubus idaeus</i>)	3	0-8	60	Min
Forb				Max
BUNCHBERRY				%:
(<i>Cornus canadensis</i>)	8	0-21	80	Comment:
CREAM-COLORED VETCHLING				Forage Production (kg/ha) n=
(<i>Lathyrus ochroleucus</i>)	8	1-18	100	Mean
DEWBERRY				Min
(<i>Rubus pubescens</i>)	2	0-9	60	Max
TWINFLOWER				
(<i>Linnaea borealis</i>)	3	0-8	60	
Grass				
BLUEJOINT				
(<i>Calamagrostis canadensis</i>)	2	1-7	80	
HAIRY WILD RYE				
(<i>Elymus innovatus</i>)	5	1-15	100	
				Total
				762
				0
				0

Ecologically Sustainable Stocking Rate

2.70 (4.05-2.02) HA/AUM or 0.15 (0.10-0.20) AUM/AC

15.1.6

PPD7. Aw/Saskatoon

(Populus tremuloides/ Amelanchier alnifolia)

n=10 This community type is the same as DMC7 in the Dry Mixedwood Guide (Willoughby et al. 2006). It is found on mesic, well drained south facing slopes that overlook rivers and creeks. Generally, hazelnut, chokecherry, saskatoon and snowberry are indicative of the region and are usually found associated with each other. When saskatoon predominates it usually occurs on south and west facing slopes. Saskatoon provides important browse for wild ungulates. Livestock also find saskatoon palatable and in areas where there is extensive cattle grazing this species can be heavily browsed.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: f low-bush cranberry (mesic/medium)

Ecosite Phase: f1 low-bush cranberry Aw

Plant Composition				Environmental Variables			
Canopy Cover (%)							
				Mean	Range	Const.	
Tree				Moisture Regime: MESIC()			
ASPEN				Nutrient Regime: MESOTROPHIC()			
(Populus tremuloides)				Elevation (range): 524(455-630) M			
BALSAM POPLAR				Slope: 3 - 5()			
(Populus balsamifera)				Aspect: Southerly(), Westerly()			
Shrub				Soil Drainage: Well drained()			
CHOKE CHERRY				Soil Subgroup:			
(Prunus virginiana)				Soil Series:			
PRICKLY ROSE				Soil Correlation:			
(Rosa acicularis)				Range Site Category:			
SASKATOON				Ecological Status Score: 18			
(Amelanchier alnifolia)							
SNOWBERRY (BUCKBRUSH)							
(Symphoricarpos occidentalis)							
WILD RED RASPBERRY							
(Rubus idaeus)							
Forb							
CREAM-COLORED VETCHLING							
(Lathyrus ochroleucus)							
DEWBERRY							
(Rubus pubescens)							
WILD SARSAPARILLA							
(Aralia nudicaulis)							
WILD STRAWBERRY							
(Fragaria virginiana)							
Grass							
BLUEJOINT							
(Calamagrostis canadensis)							

Soil Exposure

Mean Min Max

%

Comment:

Forage Production (kg/ha) n=

	Mean	Min	Max
Forb	419	250	587
Grass	153	42	264
Shrub	524	514	534
Tree			
Total	1096	806	1385

Ecologically Sustainable Stocking Rate

2.02 (4.05-1.35) HA/AUM or 0.20 (0.10-0.30) AUM/AC

15.1.7

PPD8. Aw-Pb/Hazelnut

(*Populus tremuloides*-*Populus balsamifera*/*Corylus cornuta*)

n=45 This community is the same as DMC4 in the Dry Mixedwood Guide (Willoughby et al. 2006). Beaked hazelnut is a common component of many of the deciduous stands in the region. The presence of hazelnut appears to be indicative of warmer sites and have some fire history (Downing and Karpuk 1992). This community tends to occur on moderately to well drained, fine textured and gently sloping till deposits. The total forage productivity of this community type is only moderate, but the majority of the production is coming from hazelnut, which is largely unpalatable to livestock at proper stocking levels. The high cover of hazelnut also restricts access to livestock, limiting the forage availability.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: f low-bush cranberry (mesic/medium)

Ecosite Phase: f1 low-bush cranberry Aw

Plant Composition				Environmental Variables			
	Mean	Range	Const.				
Tree				Moisture Regime: MESIC(), SUBHYGRIC()			
ASPEN				Nutrient Regime: MESOTROPHIC(), PERMESOTROPHIC()			
(<i>Populus tremuloides</i>)	38	3-75	100	Elevation (range): 455(-) M			
BALSAM POPLAR				Slope: 0 - 0.5(), 10 - 15()			
(<i>Populus balsamifera</i>)	5	0-60	38	Aspect:			
WHITE BIRCH				Soil Drainage: Well drained(), Moderate well drain()			
(<i>Betula papyrifera</i>)	2	0-70	4	Soil Subgroup:			
Shrub				Soil Series:			
BEAKED HAZELNUT				Soil Correlation:			
(<i>Corylus cornuta</i>)	39	12-70	100	Range Site Category:			
LOW-BUSH CRANBERRY				Ecological Status Score: 18			
(<i>Viburnum edule</i>)	3	0-16	71				
PRICKLY ROSE							
(<i>Rosa acicularis</i>)	9	0-25	82				
SASKATOON							
(<i>Amelanchier alnifolia</i>)	4	0-18	89				
SNOWBERRY							
(<i>Symphoricarpos albus</i>)	4	4-10	100				
Forb							
BUNCHBERRY							
(<i>Cornus canadensis</i>)	6	0-8	84				
CREAM-COLORED VETCHLING							
(<i>Lathyrus ochroleucus</i>)	5	1-10	100				
DEWBERRY							
(<i>Rubus pubescens</i>)	4	0-5	87				
LINDLEY'S ASTER							
(<i>Aster ciliolatus</i>)	2	0-7	80				
WILD SARSAPARILLA							
(<i>Aralia nudicaulis</i>)	11	0-25	93				
WILD VETCH							
(<i>Vicia americana</i>)	1	0-2	67				
Grass							
BLUEJOINT							
(<i>Calamagrostis canadensis</i>)	4	0-10	87				

Soil Exposure	Mean	Min	Max
%:			
Comment:			
Forage Production (kg/ha) n=			
	Mean	Min	Max
Forb	457	398	520
Grass	77	2	200
Shrub	441	348	522
Tree			
Total	975	748	1242

Ecologically Sustainable Stocking Rate

2.70 (4.05-1.62) HA/AUM or 0.15 (0.10-0.25) AUM/AC

15.1.8

PPD9. Aw/Rose/Tall forb

(Populus tremuloides/Rosa acicularis/Tall forbs)

n=69 This community type is the same as DMC2 in the Dry Mixedwood Guide (Willoughby et al. 2006). It is part of the low bush cranberry ecosite outlined by Beckingham and Archibald (1996). This community type is also very similar to the Aspen/Rose/Low forb community type, but the cover of forbs is much higher. This appears to be related to the grazing pressure. With higher grazing pressure on the Aw/Rose/Tall forb community type it appears to cause a reduction in the cover of tall growing forbs (wild sarsaparilla, fireweed, peavine, showy aster) and favours the growth of low growing forbs (bunchberry, dewberry, wintergreen, strawberry). This community type is providing a moderate amount of forage for domestic livestock.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: f low-bush cranberry (mesic/medium)

Ecosite Phase: f1 low-bush cranberry Aw

Plant Composition				Environmental Variables			
	Mean	Range	Const.				
Tree				Moisture Regime: MESIC(), SUBHYGRIC()			
ASPEN				Nutrient Regime: MESOTROPHIC(), PERMESOTROPHIC()			
(Populus tremuloides)	51	15-70	100	Elevation (range): 496(455-606) M			
BALSAM POPLAR				Slope: 0 - 0.5(), 0.5 - 2.5(), 10 - 15()			
(Populus balsamifera)	4	0-10	58	Aspect:			
Shrub				Soil Drainage: Well drained(), Moderate well drain()			
BEAKED HAZELNUT				Soil Subgroup:			
(Corylus cornuta)	2	0-12	34	Soil Series:			
BRACKETED HONEYSUCKLE				Soil Correlation:			
(Lonicera involucrata)	2	0-32	45	Range Site Category:			
LOW-BUSH CRANBERRY				Ecological Status Score: 18			
(Viburnum edule)	5	0-36	76				
PRICKLY ROSE							
(Rosa acicularis)	12	0-24	91				
WILD RED RASPBERRY							
(Rubus idaeus)	4	0-10	83				
Forb							
COMMON FIREWEED							
(Epilobium angustifolium)	3	0-7	61				
CREAM-COLORED VETCHLING							
(Lathyrus ochroleucus)	7	0-27	96				
DEWBERRY							
(Rubus pubescens)	4	0-7	87				
LINDLEY'S ASTER							
(Aster ciliolatus)	1	0-4	76				
PALMATE-LEAVED COLTSFOOT							
(Petasites palmatus)	2	0-10	78				
WILD SARSAPARILLA							
(Aralia nudicaulis)	11	0-57	79				
WILD STRAWBERRY							
(Fragaria virginiana)	3	0-4	87				
Grass							
BLUEJOINT							
(Calamagrostis canadensis)	5	0-65	93				
HAIRY WILD RYE							
(Elymus innovatus)	3	0-30	70				

Soil Exposure

Mean Min Max

%

Comment:

Forage Production (kg/ha) n=

Mean Min Max

Forb 507 72 988

Grass 169 444

Shrub 282 118 378

Tree

Total 958 190 1810

Ecologically Sustainable Stocking Rate

2.02 (4.05-1.35) HA/AUM or 0.20 (0.10-0.30) AUM/AC

15.2 f2 low-bush cranberry Aw-Sw (n=7)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: low-bush cranberry (mesic/medium)

Characteristic Species

Tree

- [42] white spruce
- [33] aspen

Shrub

- [9] prickly rose
- [8] low-bush cranberry
- [7] wild red raspberry
- [3] dewberry

Forb

- [8] wild sarsaparilla
- [4] bunchberry
- [3] tall lungwort
- [2] common horsetail
- [2] common fireweed

Grass

- [10] bluejoint

* Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: MESIC(), SUBHYGRIC()

Nutrient Regime: MESOTROPHIC(), PERMESOTROPHIC()

Topographic Position:

Slope:

Aspect:

Soil Characteristics

Organic Thickness: 0 - 5 cm(30), 6 - 15 cm(70)

Humus Form: MOR(90)

Surface Texture: CL(10), L(10), S(10), SiL(30), SL(10)

Effective Texture: C(20), CL(20), SCL(10), SiC(20), SiCL(10)

Depth to Mottles/Gley: None(70), 0 - 25(20)

Soil Drainage: Well drained(), Moderate well drain()

Parent Material: GF(10), GL(10), L(10), M(30)

Soil Subgroup: E.EB(10), O.GL(30), BR.GL(10), GL.GL(10)

Soil Type: SM4(70)

Plant Community Types (n)

PPE4 Sw-Aw/Low bush cranberry (5)

PPE2 Aw-Sw/Rose/Marsh reed grass (2)

15.2.1

PPE2. Aw-Sw/Rose/Marsh reed grass

(Populus tremuloides-Picea glauca/Rosa acicularis/Calamagrostis canadensis)

n=2 This community is the same as DMD5 in the Dry Mixedwood Guide (Willoughby et al. 2006). It represents a highly productive aspen community that is succeeding to white spruce. The presence of the tall forbs wild sarsaparilla and fireweed, indicate a high nutrient regime and a light grazing regime. At present this community type has a good level of forage for domestic livestock.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: f low-bush cranberry (mesic/medium)

Ecosite Phase: f2 low-bush cranberry Aw-Sw

Plant Composition		Canopy Cover (%)		Environmental Variables	
		Mean	Range	Const.	
Tree					Moisture Regime: MESIC(), SUBHYGRIC()
ASPEN					Nutrient Regime: MESOTROPHIC(), PERMESOTROPHIC()
(Populus tremuloides)	53	35-70	100		Elevation (range): 527(455-600) M
WHITE SPRUCE					Slope:
(Picea glauca)	55	50-60	100		Aspect:
Shrub					Soil Drainage: Well drained(), Moderate well drain()
BRISTLY BLACK CURRANT					Soil Subgroup:
(Ribes lacustre)	5	0-10	50		Soil Series:
LOW-BUSH CRANBERRY					Soil Correlation:
(Viburnum edule)	8	6-10	100		Range Site Category:
PRICKLY ROSE					Ecological Status Score: 18
(Rosa acicularis)	13	3-23	100		
WILD RED RASPBERRY					
(Rubus idaeus)	8	0-15	50		
Forb					
BUNCHBERRY					
(Cornus canadensis)	4	0-8	50		
COMMON FIREWEED					
(Epilobium angustifolium)	2	1-3	100		
COMMON HORSETAIL					
(Equisetum arvense)	2	0-3	50		
DEWBERRY					
(Rubus pubescens)	3	0-5	50		
TALL LUNGWORT					
(Mertensia paniculata)	4	1-7	100		
WILD SARSAPARILLA					
(Aralia nudicaulis)	4	3-4	100		
Grass					
BLUEJOINT					
(Calamagrostis canadensis)	17	3-30	100		

Soil Exposure

Mean

Min

Max

%:

Comment:

Forage Production (kg/ha) n=

Mean

Min

Max

Forb

534

Grass

468

Shrub

440

Tree

Total

1442

0

0

Ecologically Sustainable Stocking Rate

4.05 (4.05-2.02) HA/AUM or 0.10 (0.10-0.20) AUM/AC

15.2.2

PPE4. Sw-Aw/Low bush cranberry (*Picea glauca*-*Populus tremuloides*/*Viburnum edule*)

n=5 This community is the same as DMD10 in the Dry Mixedwood Guide (Willoughby et al. 2006). It is similar to PPE2 but is successional more advanced. As succession continues in the absence of disturbance on these sites there will be a corresponding drop in forage production. A spruce dominated forest generally produces about 1/3 of an undisturbed deciduous dominated community.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: f low-bush cranberry (mesic/medium)

Ecosite Phase: f2 low-bush cranberry Aw-Sw

Plant Composition	Canopy Cover (%)			Environmental Variables			
	Mean	Range	Const.				
Tree				Moisture Regime: MESIC(), SUBHYGRIC()			
ASPEN				Nutrient Regime: MESOTROPHIC(), PERMESOTROPHIC()			
(Populus tremuloides)	14	1-30	100	Elevation (range): 527(455-600) M			
WHITE SPRUCE				Slope:			
(Picea glauca)	28	20-40	100	Aspect:			
Shrub				Soil Drainage: Well drained(), Moderate well drain()			
LOW-BUSH CRANBERRY				Soil Subgroup:			
(Viburnum edule)	8	1-10	100	Soil Series:			
PRICKLY ROSE				Soil Correlation:			
(Rosa acicularis)	4	3-10	100	Range Site Category:			
RED-OSIER DOGWOOD				Ecological Status Score: 18			
(Cornus stolonifera)	9	0-30	80	Soil Exposure			
WILD RED RASPBERRY				Mean	Min	Max	
(Rubus idaeus)	5	0-10	80	%			
Forb				Comment:			
BUNCHBERRY				Forage Production (kg/ha) n=			
(Cornus canadensis)	3	0-10	80	Mean	Min	Max	
COMMON FIREWEED				Forb			
(Epilobium angustifolium)	2	0-3	80	Grass			
COMMON HORSETAIL				Shrub			
(Equisetum arvense)	1	0-3	60	Tree			
DEWBERRY				Undifferentiated	1150		
(Rubus pubescens)	2	1-3	100	Total	1150	0	0
TALL LUNGWORT							
(Mertensia paniculata)	1	1-3	100				
WILD SARSAPARILLA							
(Aralia nudicaulis)	11	0-30	80				
Grass							
BLUEJOINT							
(Calamagrostis canadensis)	3	0-10	80				

Ecologically Sustainable Stocking Rate

4.05 (4.05-2.02) HA/AUM or 0.10 (0.10-0.20) AUM/AC

The forage production amount listed is an estimate.

15.3 f3 | low-bush cranberry Sw (n=1)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: low-bush cranberry (mesic/medium)

Characteristic Species

Tree

[60] white spruce

Shrub

[3] bracted honeysuckle

[1] low-bush cranberry

Forb

[10] twinflower

[3] common horsetail

[1] dewberry

[1] bunchberry

Grass

[3] purple oat grass

* Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: MESIC(), SUBHYGRIC()

Nutrient Regime: MESOTROPHIC()

Topographic Position:

Slope:

Aspect:

Soil Characteristics

Organic Thickness: 0 - 5 cm(10), 6 - 15 cm(80)

Humus Form: MOR(90)

Surface Texture: C(10), CL(10), L(10), Si(10), SiL(20), SL(20)

Effective Texture: C(30), CL(20), SiC(10)

Depth to Mottles/Gley: None(60), 0 - 25(30)

Soil Drainage: Well drained(), Moderate well drain()

Parent Material: GL(10), M(30)

Soil Subgroup: O.GL(40), D.GL(10), BR.GL(10), GL.GL(10)

Soil Type: SM4(80)

Plant Community Types (n)

PPE5 Sw/Moss (1)

15.3.1

PPE5. Sw/Moss

(*Picea glauca*/Moss)

n=1 This community is the same as DMD11 in the Dry Mixedwood Guide (Willoughby et al. 2006). It is similar to community PPE4 Sw-Aw/Low bush cranberry, but is successional more advanced. As succession continues in the absence of disturbance on these sites there will be a corresponding drop in forage production. A spruce dominated forest generally produces 1/3 of an undisturbed deciduous and mixed wood dominated community type.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: f low-bush cranberry (mesic/medium)

Ecosite Phase: f3 low-bush cranberry Sw

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Tree				Moisture Regime: MESIC(), SUBHYGRIC()
WHITE SPRUCE (<i>Picea glauca</i>)	60		100	Nutrient Regime: MESOTROPHIC(), PERMESOTROPHIC()
Shrub				Elevation (range): 600(-) M
BRACTED HONEYSUCKLE (<i>Lonicera involucrata</i>)	3		100	Slope:
LOW-BUSH CRANBERRY (<i>Viburnum edule</i>)	1		100	Aspect:
PRICKLY ROSE (<i>Rosa acicularis</i>)	1		100	Soil Drainage: Well drained(), Moderate well drain()
RED-OSIER DOGWOOD (<i>Cornus stolonifera</i>)	3		100	Soil Subgroup:
Forb				Soil Series:
BUNCHBERRY (<i>Cornus canadensis</i>)	1		100	Soil Correlation:
COMMON HORSETAIL (<i>Equisetum arvense</i>)	3		100	Range Site Category:
DEWBERRY (<i>Rubus pubescens</i>)	1		100	Ecological Status Score: 18
TWINFLOWER (<i>Linnaea borealis</i>)	10		100	Soil Exposure
Grass				Mean Min Max
PURPLE OAT GRASS (<i>Schizachne purpurascens</i>)	3		100	%:
				Comment:
				Forage Production (kg/ha) n=
				Mean Min Max
				Forb
				Grass
				Shrub
				Tree
				Undifferentiated
				Total

Ecologically Sustainable Stocking Rate

40.47 (40.47-40.47) HA/AUM or 0.01 (0.01-0.01) AUM/AC

Generally this community type would be rated as non-use in the calculation of carrying capacity for a grazing disposition, but in some cases it may be used. The forage production amount listed is an estimate.

15.4 f4 low-bush cranberry Tame (n=68)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: low-bush cranberry (mesic/medium)

Characteristic Species

Tree

[4] aspen

Shrub

[3] prickly rose

Forb

[17] common dandelion

[8] Undifferentiated clover

[7] wild strawberry

Grass

[14] Creeping red fescue

[11] awnless brome

[8] Kentucky bluegrass

[5] timothy

* Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: MESIC(), SUBHYGRIC()

Nutrient Regime: MESOTROPHIC()

Topographic Position:

Slope:

Aspect:

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage: Well drained(), Moderate well drain()

Parent Material:

Soil Subgroup:

Soil Type:

Plant Community Types (n)

PPF6 Aw/Rose/Strawberry (5)

PPF1 Brome-Timothy (9)

PPF2 Creeping red fescue-Brome-Timothy (12)

PPF3 Creeping red fescue-Kentucky bluegrass/Dandelion (31)

PPF5 Rose/Creeping red fescue-Sedge (5)

PPF4 Strawberry-Dandelion-Weeds (6)

15.4.1

PPF1. Brome-Timothy (*Bromus inermis*-*Phleum pratense*)

n=9 This community type is the same as DMB12 in the Dry Mixedwood Guide (Willoughby et al. 2006). It represents healthy condition tame pasture on mesic sites that were seeded with a timothy, smooth brome, meadow brome, creeping red fescue, alfalfa, clover mixture. Timothy establishes much quicker than creeping red fescue or smooth brome on pastures that have been recently seeded. Eventually creeping red fescue and smooth brome will outcompete timothy and this community will likely become dominated by creeping red fescue and smooth brome. Heavy to moderate grazing pressure will cause the tall growing grass species (Brome, timothy) to decline and allows low growing Kentucky bluegrass and dandelion to increase to form communities PPF2 and PPF3. Continued heavy grazing pressure will eventually lead to a community dominated by dandelion and weeds (PPF4). Light or no grazing or poor seed establishment will allow native trees, shrubs, forbs and grass to invade onto these sites (PPF5 and PPF6).

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: f low-bush cranberry (mesic/medium)

Ecosite Phase: f4 low-bush cranberry Tame

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Shrub				Moisture Regime: MESIC(), SUBHYGRIC()
PRICKLY ROSE (<i>Rosa acicularis</i>)	1	0-4	22	Nutrient Regime: MESOTROPHIC()
Forb				Elevation (range): 587(457-606) M
COMMON DANDELION (<i>Taraxacum officinale</i>)	10	0-45	67	Slope:
UNDIFFERENTIATED CLOVER (<i>Trifolium</i>)	4	0-30	44	Aspect:
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	15	0-47	78	Soil Drainage: Well drained(), Moderate well drain()
Grass				Soil Subgroup:
AWNLESS BROME (<i>Bromus inermis</i>)	49	25-77	100	Soil Series:
CREeping RED FESCUE (<i>Festuca rubra</i>)	7	0-35	78	Soil Correlation:
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)	1	0-3	33	Range Site Category:
MEADOW BROME (<i>Bromus biebersteinii</i>)	10	0-56	44	Ecological Status Score: 8
TIMOTHY (<i>Phleum pratense</i>)	8	0-60	46	
				Soil Exposure
				Mean Min Max
				%:
				Comment:
				Forage Production (kg/ha) n=
				Mean Min Max
				Forb
				Grass
				Shrub
				Tree
				Undifferentiated
				Total
				3884 0 0

Ecologically Sustainable Stocking Rate

0.40 (0.40-0.31) HA/AUM or 1.01 (1.01-1.31) AUM/AC

PPF2. Creeping red fescue-Brome-Timothy

(*Festuca rubra* - *Bromus* spp. - *Phleum pratense*)

n=12 This community type is the same as DMB13 in the Dry Mixedwood Guide (Willoughby et al. 2006). It develops on mesic sites that were seeded to a mixture of brome, timothy or other productive species with some grazing resistant species like creeping red fescue. A history of moderate to heavy grazing pressure results in a decline in the proportions of tall, productive species and an increase in the grazing resistant species. Heavy continuous grazing will allow Kentucky bluegrass and dandelion to invade into the stand to form a Kentucky bluegrass or Quackgrass/Dandelion dominated community type.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: f low-bush cranberry (mesic/medium)

Ecosite Phase: f4 low-bush cranberry Tame

Plant Composition	Canopy Cover (%)			Environmental Variables			
	Mean	Range	Const.				
Tree				Moisture Regime: MESIC()			
ASPEN (<i>Populus tremuloides</i>)	2	0-10	33	Nutrient Regime: MESOTROPHIC()			
Shrub				Elevation (range): 609(-) M			
PRICKLY ROSE (<i>Rosa acicularis</i>)	2	0-5	75	Slope:			
Forb				Aspect:			
COMMON DANDELION (<i>Taraxacum officinale</i>)	10	0-31	83	Soil Drainage: Well drained()			
UNDIFFERENTIATED CLOVER (<i>Trifolium</i>)	19	0-72	83	Soil Subgroup:			
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	8	0-35	50	Soil Series:			
Grass				Soil Correlation:			
AWNLESS BROME (<i>Bromus inermis</i>)	15	0-75	50	Range Site Category:			
CREEPING RED FESCUE (<i>Festuca rubra</i>)	41	9-78	100	Ecological Status Score: 4			
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)	5	0-23	67	Soil Exposure			
TIMOTHY (<i>Phleum pratense</i>)	9	0-25	83	Mean			
				Min			
				Max			
				%			
				Comment:			
				Forage Production (kg/ha) n=			
				Mean			
				Min			
				Max			
				Forb			
				Grass			
				Shrub			
				Tree			
				Undifferentiated			
				2120			
				Total			
				2120			
				0			
				0			

Ecologically Sustainable Stocking Rate

0.51 (0.58-0.40) HA/AUM or 0.79 (0.70-1.01) AUM/AC

15.4.3 PPF3. Creeping red fescue-Kentucky bluegrass/Dandelion

(*Festuca rubra*-*Poa pratensis*/*Taraxacum officinale*)

n=31 This community is the same as DMB14 in the Dry Mixedwood Guide (Willoughby et al. 2006). It is representative of heavily grazed mesic sites and is dominated by grazing resistant species like Kentucky bluegrass, creeping red fescue or quackgrass. Heavy grazing tends to favour the growth of these low-growing or rhizomatous species and that of weedy or disturbance induced species such as dandelion. These sites have poor health ratings and lower production than community types dominated by species like timothy and brome.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: f low-bush cranberry (mesic/medium)

Ecosite Phase: f4 low-bush cranberry Tame

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Shrub				Moisture Regime: MESIC()
WILD RED RASPBERRY (<i>Rubus idaeus</i>)	1	0-30	25	Nutrient Regime: MESOTROPHIC()
Forb				Elevation (range): 658(576-701) M
COMMON DANDELION (<i>Taraxacum officinale</i>)	21	0-42	91	Slope:
UNDIFFERENTIATED CLOVER (<i>Trifolium</i>)	13	0-45	100	Aspect:
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	2	0-4	72	Soil Drainage: Well drained()
Grass				Soil Subgroup:
AWNLESS BROME (<i>Bromus inermis</i>)	2	0-3	25	Soil Series:
CREeping RED FESCUE (<i>Festuca rubra</i>)	15	0-75	40	Soil Correlation:
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)	15	0-36	78	Range Site Category:
QUACK GRASS (<i>Agropyron repens</i>)	5	0-45	20	Ecological Status Score: 0
TIMOTHY (<i>Phleum pratense</i>)	3	0-13	53	
				Soil Exposure
				Mean Min Max
				%:
				Comment:
				Forage Production (kg/ha) n=
				Mean Min Max
				Forb
				Grass
				Shrub
				Tree
				Undifferentiated
				Total
				2120 0 0

Ecologically Sustainable Stocking Rate

0.67 (1.35-0.40) HA/AUM or 0.60 (0.30-1.01) AUM/AC

15.4.4

PPF4. Strawberry-Dandelion-Weeds

(*Fragaria virginiana*-*Taraxacum officinale*-*Cirsium arvense*)

n=6 This community is the same as DMB15 in the Dry Mixedwood Guide (Willoughby et al. 2006). It represents extremely heavily grazed mesic pasture sites. Generally, all that is left growing on these areas is dandelion. There also tends to be a lot of bare soil, which provides a place for noxious weeds (Canada thistle) to become established.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: f low-bush cranberry (mesic/medium)

Ecosite Phase: f4 low-bush cranberry Tame

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Forb				Moisture Regime: MESIC()
CANADA THISTLE (<i>Cirsium arvense</i>)	5	0-29	33	Nutrient Regime: MESOTROPHIC()
COMMON DANDELION (<i>Taraxacum officinale</i>)	44	19-75	100	Elevation (range): 455(-) M
UNDIFFERENTIATED CLOVER (<i>Trifolium</i>)	1	0-6	50	Slope:
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	2	0-8	50	Aspect:
Grass				Soil Drainage: Well drained()
CREEPING RED FESCUE (<i>Festuca rubra</i>)	1	0-1	67	Soil Subgroup:
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)	17	3-74	100	Soil Series:
TIMOTHY (<i>Phleum pratense</i>)	2	0-7	67	Soil Correlation:
				Range Site Category:
				Ecological Status Score: 0

Soil Exposure	Mean	Min	Max
%:			

Comment:

Forage Production (kg/ha) n=			
	Mean	Min	Max
Forb			
Grass			
Shrub			
Tree			
Undifferentiated	1500		
Total	1500	0	0

Ecologically Sustainable Stocking Rate

2.02 (40.47-1.35) HA/AUM or 0.20 (0.01-0.30) AUM/AC

15.4.5

PPF5. Rose/Creeping red fescue-Sedge

(*Rosa acicularis*/*Festuca rubra*-*Carex* spp.)

n=5 This community is the same as DMB20 in the Dry Mixedwood Guide (Willoughby et al. 2006). As seeded pastures undergo succession back to a deciduous dominated forest they are often invaded by rose and willow before the trees become dominant. This community represents an early successional community of PPF6. Burning, cultivation and spraying with herbicide are all options that can be considered in order to control shrub regrowth. On mesic sites marsh reed grass tends to be the native grass that invades. In contrast hairy wild rye will invade on drier sites.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: f low-bush cranberry (mesic/medium)

Ecosite Phase: f4 low-bush cranberry Tame

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Tree				Moisture Regime: MESIC()
ASPEN				Nutrient Regime: MESOTROPHIC()
(<i>Populus tremuloides</i>)	6	0-15	40	Elevation (range): 603(600-606) M
Shrub				Slope:
PRICKLY ROSE				Aspect:
(<i>Rosa acicularis</i>)	12	1-25	100	Soil Drainage: Well drained()
Forb				Soil Subgroup:
COMMON DANDELION				Soil Series:
(<i>Taraxacum officinale</i>)	2	1-7	100	Soil Correlation:
UNDIFFERENTIATED CLOVER				Range Site Category:
(<i>Trifolium</i>)	7	0-14	80	Ecological Status Score: 0
WILD STRAWBERRY				
(<i>Fragaria virginiana</i>)	8	1-23	100	
Grass				
BLUEJOINT				
(<i>Calamagrostis canadensis</i>)	3	0-13	20	
CREeping RED FESCUE				
(<i>Festuca rubra</i>)	19	0-64	80	
HAIRY WILD RYE				
(<i>Elymus innovatus</i>)	1	0-3	40	
KENTUCKY BLUEGRASS				
(<i>Poa pratensis</i>)	2	0-7	60	
SEDGE SPECIES				
(<i>Carex</i> spp.)	7	0-24	80	
TIMOTHY				
(<i>Phleum pratense</i>)	4	0-12	60	

Soil Exposure

Mean Min Max

%:

Comment:

Forage Production (kg/ha) n=

Mean Min Max

Forb

Grass

Shrub

Tree

Undifferentiated

2000

Total

2000

0

0

Ecologically Sustainable Stocking Rate

0.81 (1.35-0.51) HA/AUM or 0.50 (0.30-0.79) AUM/AC

15.4.6

PPF6. Aw/Rose/Strawberry

(*Populus tremuloides*/*Rosa acicularis*/*Fragaria virginiana*)

n=5 This community type is the same as DMB21 in the Dry Mixedwood guide (Willoughby et al. 2006). It occurs in mesic cultivated pastures that are being invaded by aspen. No grazing pressure or only light grazing pressure allows aspen to recolonize these cultivated pastures. Burning, cultivation and spraying with herbicide are all options that can be considered in order to control aspen regrowth.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: f low-bush cranberry (mesic/medium)

Ecosite Phase: f4 low-bush cranberry Tame

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Tree				Moisture Regime: MESIC()
ASPEN				Nutrient Regime: MESOTROPHIC()
(<i>Populus tremuloides</i>)	14	8-20	100	Elevation (range): 600(-) M
BALSAM POPLAR				Slope:
(<i>Populus balsamifera</i>)	1	0-1	40	Aspect:
Shrub				Soil Drainage: Well drained()
BEAKED WILLOW				Soil Subgroup:
(<i>Salix bebbiana</i>)	1	0-4	20	Soil Series:
PRICKLY ROSE				Soil Correlation:
(<i>Rosa acicularis</i>)	3	1-4	100	Range Site Category:
SNOWBERRY (BUCKBRUSH)				Ecological Status Score: 0
(<i>Symphoricarpos occidentalis</i>)	1	0-2	60	
Forb				
COMMON DANDELION				
(<i>Taraxacum officinale</i>)	15	0-40	80	
UNDIFFERENTIATED CLOVER				
(<i>Trifolium</i>)	2	0-5	60	
WILD STRAWBERRY				
(<i>Fragaria virginiana</i>)	5	2-12	100	
Grass				
BLUEJOINT				
(<i>Calamagrostis canadensis</i>)	1	0-4	40	
CREeping RED FESCUE				
(<i>Festuca rubra</i>)	2	0-5	40	
HAIRY WILD RYE				
(<i>Elymus innovatus</i>)	6	1-15	100	
KENTUCKY BLUEGRASS				
(<i>Poa pratensis</i>)	5	0-8	60	
TIMOTHY				
(<i>Phleum pratense</i>)	1	0-4	20	

Soil Exposure

Mean Min Max

%:

Comment:

Forage Production (kg/ha) n=

Mean Min Max

Forb

Grass

Shrub

Tree

Undifferentiated

Total

2060

2060

0

0

Ecologically Sustainable Stocking Rate

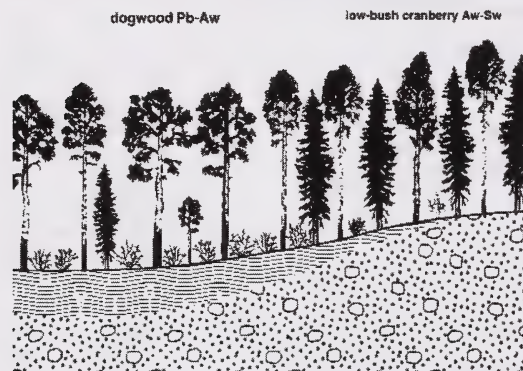
2.02 (4.05-0.51) HA/AUM or 0.20 (0.10-0.79) AUM/AC

16.0 g dogwood (subhygric/rich) (n=76)

Natural Subregion: PEACE RIVER PARKLAND

General Description

This description was taken from Beckingham and Archibald (1996) for the Boreal Mixedwood. The dogwood ecosite is subhygric and nutrient rich. These sites are commonly found in mid or lower slope topographic positions or near water courses where they receive nutrient-rich seepage or flood waters for a portion of the growing season. Fine-textured glaciolacustrine and till parent materials are common and plant communities tend to be high in species richness, cover and diversity. The dogwood ecosite tends to be the most productive in the Boreal Mixedwood.



Successional Relationships

Succession proceeds slowly after disturbance due to the proliferation of understory plant species. This explosion of vegetation can make tree establishment difficult. Once spruce becomes established, high growth rates can be expected. When these sites are cleared for tame pasture they are very productive.

Indicator Species

river alder	bluejoint
red-osier dogwood	common horsetail
balsam poplar	prickly rose
Scouler's willow	Undifferentiated willow

Site Characteristics

Moisture Regime: SUBHYGRIC(), HYGRIC()
 Nutrient Regime: PERMESOTROPHIC()
 Topographic Poistion: Level(), Lower slope(), Midslope()
 Slope: 0 - 0.5(), 3 - 5()
 Aspect: Variable()

Soil Characteristics

Organic Thickness: 0 - 5 cm(), 6 - 15 cm(), 16 - 25 cm()
 Humus Form: RAW MODER(), MOR()
 Surface Texture: CL(), L(), SiCL(), SiL(), SL()
 Effective Texture: C(), CL(), S(), SiC(), SiCL()
 Depth to Mottles/Gley: None(), 0 - 25(), 26 - 50()
 Soil Drainage: Well drained(), Moderate well drain(), Imperfectly drained()
 Parent Material: F(), GL(), M()
 Soil Subgroup: O.G(), O.LG(), O.GL(), GL.GL()

Site Index at 50 Years

balsam fir: 16.6 m +/- 1.6 m; n=7
 white birch: 13.9 m +/- 2.9 m; n=3
 white spruce: 17.8 m +/- 0.3 m; n=175
 balsam poplar: 19.7 m +/- 0.6 m; n=38
 aspen: 21.4 m +/- 0.4 m; n=58

Forage Production Summary (kg/ha)

(Refer to the Plant Community for detailed Stocking Rate Information)

	Forage Production (kg/ha)				Stocking Rate ha/aum(aum/ac)
	Grass	Forb	Shrub	Total	
g dogwood (subhygric/rich)					
g2 dogwood pb-aw	13	213	713	1113	3.37(0.12)
PPD10 Pb-Aw/Red osier dogwood	13	213	713	939	2.02(0.20)
PPD14 Pb-Bw/Kentucky bluegrass				1150	4.05(0.10)
PPD15 Pb/Smooth brome				1250	4.05(0.10)
g3 dogwood Pb-Sw				620	8.09(0.05)
PPE6 Sw-Pb/Red-osier dogwood				620	8.09(0.05)
g4 dogwood Tame	1225	775		2250	0.94(0.43)
PPF10 Reed canary grass-Meadow foxtail-S. brome-Timothy				2500	0.34(1.19)
PPF11 Brome-Creeping red fescue-K. bluegrass/Dandelion				2500	0.40(1.01)

Forage Production Summary (kg/ha)

(Refer to the Plant Community for detailed Stocking Rate Information)

	Forage Production (kg/ha)				Stocking Rate ha/aum(aum/ac)
	Grass	Forb	Shrub	Total	
g dogwood (subhygric/rich)					
g4 dogwood Tame	1225	775		2250	0.94(0.43)
PPF12 Foxtail barley/Weeds	1200	300		1500	2.02(0.20)
PPF13 Willow/Timothy	1250	1250		2500	1.01(0.40)

16.1 g1 shrubland (n=3)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: dogwood (subhygric/rich)

Characteristic Species

Tree

[1] balsam poplar

Shrub

[40] red-osier dogwood

[27] Scouler's willow

[23] beaked willow

[17] shining willow

[3] river alder

Forb

[4] common horsetail

[2] common dandelion

[2] wild vetch

Grass

[8] bluejoint

[1] awned sedge

* Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: SUBHYGRIC(), HYGRIC()

Nutrient Regime: PERMESOTROPHIC()

Topographic Position:

Slope:

Aspect:

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage: Moderate well drain(), Imperfectly drained()

Parent Material:

Soil Subgroup:

Soil Type:

Plant Community Types (n)

PPB1 Red-osier dogwood-Shining willow (1)

PPB2 Bebb willow-Red-osier dogwood (1)

PPB3 Scoulers willow-Red-osier dogwood (1)

16.1.1

PPB1. Red-osier dogwood-Shining willow

(Cornus stolonifera-Salix lucida)

n=1 Red-osier dogwood and shining willow are codominant Marsh reed grass, horsetail, and river alder occur in lesser amounts

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: g dogwood (subhygric/rich)

Ecosite Phase: g1 shrubland

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Shrub				Moisture Regime: SUBHYGRIC(), HYGRIC()
RED-OSIER DOGWOOD (<i>Cornus stolonifera</i>)	60		100	Nutrient Regime: PERMESOTROPHIC()
RIVER ALDER (<i>Alnus tenuifolia</i>)	10		100	Elevation (range): (-) M
SHINING WILLOW (<i>Salix lucida</i>)	50		100	Slope:
Forb				Aspect:
COMMON DANDELION (<i>Taraxacum officinale</i>)	3		100	Soil Drainage:
COMMON HORSETAIL (<i>Equisetum arvense</i>)	10		100	Soil Subgroup:
WILD VETCH (<i>Vicia americana</i>)	3		100	Soil Series:
Grass				Soil Correlation:
BLUEJOINT (<i>Calamagrostis canadensis</i>)	20		100	Range Site Category:
				Ecological Status Score: 18

Soil Exposure	Mean	Min	Max
%:			

Comment:

Forage Production (kg/ha) n=

	Mean	Min	Max
Forb			
Grass			
Shrub			
Tree			
Total	0	0	0

Ecologically Sustainable Stocking Rate

2.02 (1.35-1.01) HA/AUM or 0.20 (0.30-0.40) AUM/AC

16.1.2

PPB2. Bebb willow-Red-osier dogwood

(*Salix bebbiana*-*Cornus stolonifera*)

n=1 This community is described by (Thompson and Hansen 2003) and occupies moist areas on alluvial terraces, around lakes and sloughs and near springs and seeps such as Saskatoon Lake near Grande Prairie. Bebb's willow and red-osier dogwood are strongly codominate. Marsh reed grass, sedge and Kentucky bluegrass are common grasses, though of low coverage. Wild strawberry, dandelion and wild vetch are common forbs but also of low coverage. With increased grazing pressure red-osier dogwood will be replaced by less palatable shrubs and forbs and grasses like smooth brome, Kentucky bluegrass, timothy, Canada thistle and perennial sow-thistle. With continued heavy grazing, this community will be dominated by Bebb's willow, which is resistant to grazing. Grazing impacts can be evaluated by looking at the browse on red-osier dogwood, which is an "ice cream" plant.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: g dogwood (subhygric/rich)

Ecosite Phase: g1 shrubland

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Shrub				Moisture Regime: SUBHYGRIC(), HYGRIC()
BEAKED WILLOW (<i>Salix bebbiana</i>)	70		100	Nutrient Regime: PERMESOTROPHIC()
RED-OSIER DOGWOOD (<i>Cornus stolonifera</i>)	40		100	Elevation (range): (-) M
Forb				Slope:
COMMON DANDELION (<i>Taraxacum officinale</i>)	3		100	Aspect:
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	3		100	Soil Drainage: Moderate well drain(), Imperfectly drained()
WILD VETCH (<i>Vicia americana</i>)	3		100	Soil Subgroup:
Grass				Soil Series:
AWNED SEDGE (<i>Carex atherodes</i>)	3		100	Soil Correlation:
BLUEJOINT (<i>Calamagrostis canadensis</i>)	3		100	Range Site Category:
GRACEFUL SEDGE (<i>Carex praegracilis</i>)	3		100	Ecological Status Score: 24
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)	3		100	Soil Exposure
WATER SEDGE (<i>Carex aquatilis</i>)	3		100	Mean
				Min
				Max
				%:
				Comment:
				Forage Production (kg/ha) n=
				Mean
				Min
				Max
Forb				
Grass				
Shrub				
Tree				
Total	0	0	0	

Ecologically Sustainable Stocking Rate

2.02 (4.05-1.35) HA/AUM or 0.20 (0.10-0.30) AUM/AC

16.1.3

PPB3. Scoulers willow-Red-osier dogwood

(*Salix scouleriana*-*Cornus stolonifera*)

n=1 This community is similar to the CMA14-Scouler willow-red osier dogwood community of the Central Mixedwood Guide (Willoughby et al. 2006). This community occurs on low sites with high water tables (within 1 m of the soil surface throughout the summer) that are adjacent to forested lakes such as Saskatoon Lake near Grande Prairie. Scouler's willow has greater coverage, however both it and red-osier dogwood are strongly dominate. There is some cover of balsam poplar. There are very few species of forbs or grasses present. Disturbance from grazing will decrease the cover of red-osier dogwood and willow in favour of honeysuckle and currants, decrease marsh reed grass in favour of common nettle, and increase the number of forb species present (Thompson and Hansen, 2003). Although this community type provides moderate amounts of forage, it occurs on sites that may be too wet for livestock to access. It is generally considered secondary or non-use range.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: g dogwood (subhygric/rich)

Ecosite Phase: g1 shrubland

Plant Composition		Canopy Cover (%)		Environmental Variables				
		Mean	Range	Const.				
Tree					Moisture Regime: SUBHYGRIC(), HYGRIC()			
BALSAM POPLAR (<i>Populus balsamifera</i>)	3			100	Nutrient Regime: PERMESOTROPHIC()			
Shrub					Elevation (range): (-) M			
RED-OSIER DOGWOOD (<i>Cornus stolonifera</i>)	20			100	Slope:			
SCOULER'S WILLOW (<i>Salix scouleriana</i>)	80			100	Aspect:			
Forb					Soil Drainage: Moderate well drain(), Imperfectly drained()			
COMMON HORSETAIL (<i>Equisetum arvense</i>)	1			100	Soil Subgroup:			
COMMON NETTLE (<i>Urtica dioica</i>)	1			100	Soil Series:			
DEWBERRY (<i>Rubus pubescens</i>)	1			100	Soil Correlation:			
STAR-FLOWERED SOLOMON'S-SEAL (<i>Smilacina stellata</i>)	1			100	Range Site Category:			
VEINY MEADOW RUE (<i>Thalictrum venulosum</i>)	1			100	Ecological Status Score: 24			
					Soil Exposure			
					Mean	Min	Max	
WILD MINT (<i>Mentha arvensis</i>)					%			
YELLOW AVENS (<i>Geum aleppicum</i>)					Comment:			
					Forage Production (kg/ha) n=			
					Mean	Min	Max	
Grass								
AWNED SEDGE (<i>Carex atherodes</i>)	1			100	Forb			
DEWEY'S SEDGE (<i>Carex deweyana</i>)	1			100	Grass			
					Shrub			
					Tree			
					Total	0	0	0

16.2 g2 dogwood pb-aw (n=59)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: dogwood (subhygric/rich)

Characteristic Species

Tree

[54] balsam poplar

Shrub

[11] red-osier dogwood

[5] prickly rose

[3] Undifferentiated willow

Forb

[3] common horsetail

[2] common dandelion

Grass

[5] Kentucky bluegrass

[3] awnless brome

[2] bluejoint

*Species characteristic of the phase but
occurring in <70% for the sample plots with a
prominence value <20.

Site Characteristics

Moisture Regime: SUBHYGRIC()

Nutrient Regime: PERMESOTROPHIC()

Topographic Position:

Slope:

Aspect:

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage: Well drained(), Moderate well drain()

Parent Material:

Soil Subgroup:

Soil Type:

Plant Community Types (n)

PPD10 Pb-Aw/Red osier dogwood (52)

PPD15 Pb/Smooth brome (2)

PPD14 Pb-Bw/Kentucky bluegrass (5)

16.2.1

PPD10. Pb-Aw/Red osier dogwood (*Populus balsamifera*-*P.tremuloides*/*Cornus stolonifera*)

n=52 This community type is the same as DMC8 in the Dry Mixedwood Guide (Willoughby et al 2006). It is typical of river floodplains throughout the region. This community type tends to have a subhygric moisture and rich nutrient regime. Beckingham and Archibald (1996) found this community type on mid to lower slope topographic positions or near water courses where they receive nutrient-rich seepage or flood waters for a portion of the growing season. This community type is one of the most productive in the region, but the high cover of shrubs limits access to livestock.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: g dogwood (subhygric/rich)

Ecosite Phase: g2 dogwood pb-aw

Plant Composition		Canopy Cover (%)		Environmental Variables	
		Mean	Range	Const.	
Tree					Moisture Regime: SUBHYGRIC()
ASPEN					Nutrient Regime: PERMESOTROPHIC()
(<i>Populus tremuloides</i>)	20	0-60	69		Elevation (range): 524(455-606) M
BALSAM POPLAR					Slope:
(<i>Populus balsamifera</i>)	37	0-80	84		Aspect:
WHITE BIRCH					Soil Drainage: Moderate well drain()
(<i>Betula papyrifera</i>)	4	0-50	41		Soil Subgroup:
Shrub					Soil Series:
LOW-BUSH CRANBERRY					Soil Correlation:
(<i>Viburnum edule</i>)	7	0-30	78		Range Site Category:
PRICKLY ROSE					Ecological Status Score: 18
(<i>Rosa acicularis</i>)	9	0-18	78		
RED-OSIER DOGWOOD					
(<i>Cornus stolonifera</i>)	23	8-70	100		
WILD RED RASPBERRY					
(<i>Rubus idaeus</i>)	4	0-18	60		
Forb					
COMMON FIREWEED					Soil Exposure
(<i>Epilobium angustifolium</i>)	3	0-20	61		Mean
COMMON HORSETAIL					Min
(<i>Equisetum arvense</i>)	4	0-10	73		Max
CREAM-COLORED VETCHLING					%:
(<i>Lathyrus ochroleucus</i>)	1	0-4	57		Comment:
WILD SARSAPARILLA					Forage Production (kg/ha) n=
(<i>Aralia nudicaulis</i>)	7	0-40	80		Mean
Grass					Min
BLUEJOINT					Max
(<i>Calamagrostis canadensis</i>)	4	0-50	75		
					Forb
					Grass
					Shrub
					Tree
					Total

Ecologically Sustainable Stocking Rate

2.02 (4.05-1.35) HA/AUM or 0.20 (0.10-0.30) AUM/AC

Generally this community type would be rated as non-use in the calculation of carrying capacity for a grazing disposition, but in some cases it may be used.

16.2.2

PPD14. Pb-Bw/Kentucky bluegrass (*Populus balsamifera*-*Betula papyrifera*/*Poa pratensis*)

n=5 This community is the same as DMC18 in the Dry Mixedwood Guide (Willoughby et al. 2006). It represents a Pb or Bw/Red osier dogwood community that has recieved prolonged heavy grazing. This community type often occurs in relatively small isolated patches created by intensive grazing adjacent to water, salt or temporary holding areas. The species richness and diversity of native shrubs, forbs, and grass is reduced and replaced by grazing resistant species like clover, dandelion and Kentucky bluegrass.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: g dogwood (subhygric/rich)

Ecosite Phase: g2 dogwood pb-aw

Plant Composition	Canopy Cover (%)			Environmental Variables		
	Mean	Range	Const.			
Tree				Moisture Regime: SUBHYGRIC()		
ASPEN				Nutrient Regime: PERMESOTROPHIC()		
(Populus tremuloides)	4	0-10	80	Elevation (range): 524(455-697) M		
BALSAM POPLAR				Slope: 0 - 0.5(), 0.5 - 2.5(), 3 - 5()		
(Populus balsamifera)	54	30-80	100	Aspect:		
WHITE BIRCH				Soil Drainage: Moderate well drain()		
(Betula papyrifera)	8	0-40	60	Soil Subgroup:		
Shrub				Soil Series:		
PRICKLY ROSE				Soil Correlation:		
(Rosa acicularis)	6	3-10	100	Range Site Category:		
SALIX SPECIES				Ecological Status Score: 6		
(Salix spp.)	3	3-4	100			
SNOWBERRY (BUCKBRUSH)				Soil Exposure		
(Symphoricarpos occidentalis)	3	1-10	100	Mean	Min	Max
WILD RED RASPBERRY				%:		
(Rubus idaeus)	4	0-10	80	Comment:		
Forb				Forage Production (kg/ha) n=		
COMMON DANDELION				Mean	Min	Max
(Taraxacum officinale)	4	1-10	100	Forb		
COMMON FIREWEED				Grass		
(Epilobium angustifolium)	1	0-1	60	Shrub		
COMMON HORSETAIL				Tree		
(Equisetum arvense)	2	1-3	100	Undifferentiated	1150	
DEWBERRY				Total	1150	0
(Rubus pubescens)	4	0-20	80			0
SHOWY ASTER						
(Aster conspicuus)	2	1-3	100			
UNDIFFERENTIATED CLOVER						
(Trifolium)	2	0-10	60			
WILD STRAWBERRY						
(Fragaria virginiana)	3	1-3	100			
Grass						
BLUEJOINT						
(Calamagrostis canadensis)	1	0-3	80			
KENTUCKY BLUEGRASS						
(Poa pratensis)	9	1-20	100			
QUACK GRASS						
(Agropyron repens)	1	0-3	60			

Ecologically Sustainable Stocking Rate

4.05 (4.05-2.02) HA/AUM or 0.10 (0.10-0.20) AUM/AC

The forage production amount listed is an estimate.

16.2.3

PPD15. Pb/Smooth brome

(*Populus balsamifera*/Bromus inermis)

n=2 This community type is the same as DMC19 in the Dry Mixedwood Guide (Willoughby et al. 2006). It is similar to red osier dogwood and balsam poplar dominated community types, but has a high cover of smooth brome in the understory. Smooth brome is an introduced grass that can increase with increased grazing pressure, but smooth brome is also highly invasive and can invade into ungrazed areas. The invasion of non-native invaders onto the site makes this community moderately productive for domestic livestock.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: g dogwood (subhygric/rich)

Ecosite Phase: g2 dogwood pb-aw

Plant Composition	Canopy Cover (%)			Environmental Variables			
	Mean	Range	Const.				
Tree				Moisture Regime: SUBHYGRIC()			
BALSAM POPLAR (<i>Populus balsamifera</i>)	70	60-80	100	Nutrient Regime: PERMESOTROPHIC()			
Shrub				Elevation (range): 524(455-697) M			
RED-OSIER DOGWOOD (<i>Cornus stolonifera</i>)	10	1-20	100	Slope: 0 - 0.5(), 0.5 - 2.5(), 3 - 5()			
SALIX SPECIES (<i>Salix spp.</i>)	7	3-10	100	Aspect:			
SNOWBERRY (BUCKBRUSH) (<i>Symphoricarpos occidentalis</i>)	7	3-10	100	Soil Drainage: Well drained(), Moderate well drain()			
WILD RED RASPBERRY (<i>Rubus idaeus</i>)	10	0-20	50	Soil Subgroup:			
Forb				Soil Series:			
COMMON DANDELION (<i>Taraxacum officinale</i>)	2	1-3	100	Soil Correlation:			
COMMON HORSETAIL (<i>Equisetum arvense</i>)	5	1-10	100	Range Site Category:			
HEMP-NETTLE (<i>Galeopsis tetrahit</i>)	5	0-10	50	Ecological Status Score: 6			
SHOWY ASTER (<i>Aster conspicuus</i>)	2	1-3	100	Soil Exposure			
STAR-FLOWERED SOLOMON'S-SEAL (<i>Smilacina stellata</i>)	7	3-10	100	Mean			
UNDIFFERENTIATED CLOVER (<i>Trifolium</i>)	1	0-1	50	Min			
WILD WHITE GERANIUM (<i>Geranium richardsonii</i>)	10	0-20	50	Max			
Grass				%			
AWNLESS BROME (<i>Bromus inermis</i>)	10	1-20	100	Comment:			
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)	5	0-10	50	Forage Production (kg/ha) n=			
QUACK GRASS (<i>Agropyron repens</i>)	2	0-3	50	Mean			
				Min			
				Max			
				Forb			
				Grass			
				Shrub			
				Tree			
				Undifferentiated			
				1250			
				Total			
				1250			
				0			
				0			
				Ecologically Sustainable Stocking Rate			
				4.05 (4.05-2.02) HA/AUM or 0.10 (0.10-0.20) AUM/AC			
				The forage production amount listed is an estimate.			

16.3 g3 dogwood Pb-Sw (n=6)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: dogwood (subhygric/rich)

Characteristic Species

Tree

- [30] balsam poplar
- [23] white spruce

Shrub

- [14] red-osier dogwood
- [11] river alder
- [7] prickly rose
- [2] low-bush cranberry

Forb

- [8] bunchberry
- [3] common horsetail*
- [2] wild sarsaparilla

Grass

- [6] redbow
- [3] Kentucky bluegrass
- [2] bluejoint

*Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: SUBHYGRIC()

Nutrient Regime: PERMESOTROPHIC()

Topographic Position:

Slope:

Aspect:

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage: Well drained(), Moderate well drain()

Parent Material:

Soil Subgroup:

Soil Type:

Plant Community Types (n)

PPE6 Sw-Pb/Red-osier dogwood (6)

16.3.1

PPE6. Sw-Pb/Red-osier dogwood (*Picea glauca*-*Populus balsamifera*/*Cornus stolonifera*)

n=6 This community is the same as DMD13 in the Dry Mixedwood Guide (Willoughby et al. 2006). It is similar to community PPD10 Pb-Aw/Red osier dogwood but is successional more advanced. As succession continues in the absence of disturbance on these sites there will be a corresponding drop in forage production. A spruce dominated forest is generally produces about 1/3 of an undisturbed deciduous dominated community type.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: g dogwood (subhygric/rich)

Ecosite Phase: g3 dogwood Pb-Sw

Plant Composition				Environmental Variables			
	Canopy Cover (%)						
	Mean	Range	Const.				
Tree				Moisture Regime: SUBHYGRIC()			
BALSAM POPLAR (<i>Populus balsamifera</i>)	30	20-60	100	Nutrient Regime: PERMESOTROPHIC()			
WHITE SPRUCE (<i>Picea glauca</i>)	23	1-40	100	Elevation (range): 600(-) M			
Shrub				Slope:			
LOW-BUSH CRANBERRY (<i>Viburnum edule</i>)	2	0-10	67	Aspect:			
PRICKLY ROSE (<i>Rosa acicularis</i>)	7	3-20	100	Soil Drainage: Well drained(), Moderate well drain()			
RED-OSIER DOGWOOD (<i>Cornus stolonifera</i>)	14	3-20	100	Soil Subgroup:			
RIVER ALDER (<i>Alnus tenuifolia</i>)	11	3-30	100	Soil Series:			
Forb				Soil Correlation:			
BUNCHBERRY (<i>Cornus canadensis</i>)	8	0-30	83	Range Site Category:			
COMMON HORSETAIL (<i>Equisetum arvense</i>)	3	1-10	100	Ecological Status Score: 18			
STAR-FLOWERED SOLOMON'S-SEAL (<i>Smilacina stellata</i>)	1	1-3	100	Soil Exposure			
WILD SARSAPARILLA (<i>Aralia nudicaulis</i>)	2	0-10	67				
Grass							
BLUEJOINT (<i>Calamagrostis canadensis</i>)	2	0-3	67				
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)	3	0-10	83				
REDTOP (<i>Agrostis stolonifera</i>)	6	0-20	83				
				Soil Exposure			
				Mean Min Max			
				%			
				Comment:			
				Forage Production (kg/ha) n=			
				Mean Min Max			
				Forb			
				Grass			
				Shrub			
				Tree			
				Undifferentiated			
				Total			
				620 0 0			

Ecologically Sustainable Stocking Rate

8.09 (8.09-2.02) HA/AUM or 0.05 (0.05-0.20) AUM/AC

The forage production amount listed is an estimate.

16.4 g4 dogwood Tame (n=8)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: dogwood (subhygric/rich)

Characteristic Species

Shrub

[5] beaked willow

Forb

[15] common dandelion

[11] Undifferentiated clover

[5] wild strawberry

[3] Undifferentiated medick

Grass

[18] timothy

[17] Creeping red fescue

[6] awnless brome

[5] Undifferentiated sedge

[2] Kentucky bluegrass

*Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: SUBHYGRIC()

Nutrient Regime: PERMESOTROPHIC()

Topographic Position:

Slope:

Aspect:

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage: Well drained(), Moderate well drain(), Imperfectly drained()

Parent Material:

Soil Subgroup:

Soil Type:

Plant Community Types (n)

PPF11 Brome-Creeping red fescue-K. bluegrass/Dandelion (3)

PPF12 Foxtail barley/Weeds (1)

PPF10 Reed canary grass-Meadow foxtail-S. brome-Timothy (2)

PPF13 Willow/Timothy (2)

16.4.1 PPF10. Reed canary grass-Meadow foxtail-S. brome-Timothy

(*Phalaris arundinacea*-*Alopecurus pratensis*-*Bromus inermis*-*Phleum pratense*)

n=2 This community type is the same as DMB16 in the Dry Mixedwood Guide (Willoughby et al. 2006). It represents seeded areas on moist (subhygric) rich sites. Reed canary grass and meadow foxtail establish quickly in wet places that have been disturbed and will dominate very wet sites. Care should be taken when seeding reed canary grass. It appears that the commercial cultivars can be very invasive (Invasive plants of natural habitats 1992). In areas that have supported reed canary grass monocultures for extended periods many have seed banks devoid of other species. Meadow foxtail also seems particularly prone to increasing on moister grazed sites as it starts growth and heads out early. Meadow foxtail becomes unpalatable and is avoided by livestock if it is not grazed early enough in the spring.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: g dogwood (subhygric/rich)

Ecosite Phase: g4 dogwood Tame

Plant Composition	Canopy Cover (%)			Environmental Variables		
	Mean	Range	Const.			
Forb				Moisture Regime: SUBHYGRIC()		
COMMON DANDELION (<i>Taraxacum officinale</i>)	3	2-3	100	Nutrient Regime: PERMESOTROPHIC()		
UNDIFFERENTIATED CLOVER (<i>Trifolium</i>)	15	6-25	100	Elevation (range): (579-606) M		
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	13	0-26	50	Slope:		
WILD VETCH (<i>Vicia americana</i>)	1	0-1	50	Aspect:		
Grass				Soil Drainage: Well drained()		
AWNLESS BROME (<i>Bromus inermis</i>)	21	0-41	50	Soil Subgroup:		
CREEPING RED FESCUE (<i>Festuca rubra</i>)	6	1-11	100	Soil Series:		
MEADOW FOXTAIL (<i>Alopecurus pratensis</i>)	11	0-22	50	Soil Correlation:		
REED CANARY GRASS (<i>Phalaris arundinacea</i>)	28	0-55	50	Range Site Category:		
TIMOTHY (<i>Phleum pratense</i>)	5	2-7	100	Ecological Status Score: 8		
				Soil Exposure		
				Mean	Min	Max
				%		
				Comment:		
				Forage Production (kg/ha) n=		
				Mean	Min	Max
Forb						
Grass						
Shrub						
Tree						
Undifferentiated				2500		
Total				2500	0	0

Ecologically Sustainable Stocking Rate

0.34 (0.40-0.27) HA/AUM or 1.19 (1.01-1.50) AUM/AC

16.4.2 PPF11. Brome-Creeping red fescue-K. bluegrass/Dandelion

(*Bromus spp.-Festuca rubra-Poa pratensis/Taraxacum officinale*)

n=3 This community is the same as DMB17 in the Dry Mixedwood Guide (Willoughby et al. 2006). It represents moderately grazed subhygric sites. Heavy continuous grazing will allow Kentucky bluegrass and dandelion to invade into the stand to form a Kentucky bluegrass or Quackgrass/Dandelion dominated community type. Continued heavy grazing pressure may eventually lead to a site dominated by disturbance induced species like foxtail barley, dandelion and strawberry.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: g dogwood (subhygric/rich)

Ecosite Phase: g4 dogwood Tame

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Forb				Moisture Regime: SUBHYGRIC()
COMMON DANDELION (<i>Taraxacum officinale</i>)	29	15-38	100	Nutrient Regime: PERMESOTROPHIC()
COMMON HORSETAIL (<i>Equisetum arvense</i>)	4	2-6	100	Elevation (range): 667(-) M
UNDIFFERENTIATED CLOVER (<i>Trifolium</i>)	19	6-31	100	Slope:
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	2	1-2	100	Aspect:
Grass				Soil Drainage: Moderate well drain()
CREeping RED FESCUE (<i>Festuca rubra</i>)	62	40-80	100	Soil Subgroup:
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)	5	1-10	100	Soil Series:
MEADOW BROME (<i>Bromus biebersteinii</i>)	21	17-23	100	Soil Correlation:
SEDGE SPECIES (<i>Carex spp.</i>)	16	1-45	100	Range Site Category:
TIMOTHY (<i>Phleum pratense</i>)	3	2-4	100	Ecological Status Score: 4

Soil Exposure	Mean	Min	Max
%:			
Comment:			

Forage Production (kg/ha) n=

	Mean	Min	Max
Forb			
Grass			
Shrub			
Tree			
Undifferentiated	2500		
Total	2500	0	0

Ecologically Sustainable Stocking Rate

0.40 (0.51-0.34) HA/AUM or 1.01 (0.79-1.19) AUM/AC

16.4.3

PPF12. Foxtail barley/Weeds

(*Hordeum jubatum*/Weeds)

n=1 This community type is the same as DMB18 in the Dry Mixedwood Guide (Willoughby et al. 2006). It develops on heavily grazed subhygric moist sites. This community was found in depressional areas and on river flood plains. Foxtail barley is also well adapted to growing on saline soils (Bailey et al. 1992). It is likely that the soils of this site are slightly saline. This community type would be considered non-use because the principle forage species foxtail barley is generally unpalatable to livestock except in the Spring before it heads out. Foxtail barley can also cause injury to livestock. The sharp seeds and awns may work their way into tongues, gums, eyes, noses or skin of animals.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: g dogwood (subhygric/rich)

Ecosite Phase: g4 dogwood Tame

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Forb				Moisture Regime: SUBHYGRIC()
COMMON DANDELION (<i>Taraxacum officinale</i>)	1		100	Nutrient Regime: PERMESOTROPHIC()
UNDIFFERENTIATED CLOVER (<i>Trifolium</i>)	5		100	Elevation (range): 597(457-606) M
UNDIFFERENTIATED MEDICK (<i>Medicago</i>)	11		100	Slope:
YELLOW SWEET-CLOVER (<i>Melilotus officinalis</i>)	4		100	Aspect:
Grass				Soil Drainage: Well drained()
AWNLESS BROME (<i>Bromus inermis</i>)	1		100	Soil Subgroup:
FOWL BLUEGRASS (<i>Poa palustris</i>)	1		100	Soil Series:
FOXTAIL BARLEY (<i>Hordeum jubatum</i>)	69		100	Soil Correlation:
TIMOTHY (<i>Phleum pratense</i>)	18		100	Range Site Category:
				Ecological Status Score: 0

Soil Exposure

Mean Min Max

%:

Comment:

Forage Production (kg/ha) n=

	Mean	Min	Max
Forb	300		
Grass	1200		
Shrub			
Tree			
Total	1500	0	0

Ecologically Sustainable Stocking Rate

2.02 (4.05-1.35) HA/AUM or 0.20 (0.10-0.30) AUM/AC

16.4.4

PPF13. Willow/Timothy

(*Salix spp./Phleum pratense*)

n=2 This community is the same as DMB24 in the Dry Mixedwood Guide (Willoughby et al. 2006). It represents invasion of shrubs and trees onto tame pasture on moister sites. Willow favours growing on these moist, richer sites and will often invade into the edges of the pasture. Burning, cultivation and spraying with herbicide are all options that can be considered in order to control shrub regrowth.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: g dogwood (subhygric/rich)

Ecosite Phase: g4 dogwood Tame

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Shrub				Moisture Regime: SUBHYGRIC()
BEAKED WILLOW (<i>Salix bebbiana</i>)	19	8-30	100	Nutrient Regime: PERMESOTROPHIC()
Forb				Elevation (range): 600(-) M
COMMON DANDELION (<i>Taraxacum officinale</i>)	27	4-49	100	Slope:
COMMON HORSETAIL (<i>Equisetum arvense</i>)	1	0-2	50	Aspect:
UNDIFFERENTIATED CLOVER (<i>Trifolium</i>)	3	2-3	100	Soil Drainage: Well drained(), Imperfectly drained()
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	6	0-12	100	Soil Subgroup:
Grass				Soil Series:
AWNLESS BROME (<i>Bromus inermis</i>)	2	0-3	50	Soil Correlation:
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)	1	0-1	50	Range Site Category:
SEDGE SPECIES (<i>Carex spp.</i>)	5	0-9	50	Ecological Status Score: 8
TIMOTHY (<i>Phleum pratense</i>)	45	43-46	100	

Soil Exposure	Mean	Min	Max
%:			
Comment:			

Forage Production (kg/ha) n=			
	Mean	Min	Max
Forb	1250	750	1750
Grass	1250	700	1500
Shrub			
Tree			
Total	2500	1450	3250

Ecologically Sustainable Stocking Rate

1.01 (1.35-0.81) HA/AUM or 0.40 (0.30-0.50) AUM/AC

The forage production amounts listed are an estimate.

17.0 h horsetail (hygric/rich) (n=31)

Natural Subregion: PEACE RIVER PARKLAND

General Description

Beckingham and Archibald (1996) describe the horsetail ecosite in the Boreal Mixedwood as wet and nutrient rich. They found these sites on fluvial or glaciolacustrine parent materials where flooding or seepage enhances the substrate nutrient supply. The high water tables, wet soil conditions and Gleysolic soils tend to cause organic matter to accumulate. Horsetails tend to dominate the understory of this ecological site.



Successional Relationships

Succession on these sites is too white spruce which may take hundreds of years to develop.

Indicator Species

quack grass	river alder
white birch	bluejoint
red-osier dogwood	common horsetail
white spruce	balsam poplar
prickly rose	sandbar willow
shining willow	yellow willow
Canada goldenrod	perennial sow-thistle

Site Characteristics

Moisture Regime: SUBHYGRIC(), HYGRIC()

Nutrient Regime: PERMESOTROPHIC()

Topographic Position: Toe(), Depression()

Slope: 0.5 - 2.5()

Aspect: Level(), Northerly()

Soil Characteristics

Organic Thickness: 0 - 5 cm(), 6 - 15 cm(), 16 - 25 cm(), 26 - 39 cm()

Humus Form: RAW MODER(), MOR()

Surface Texture: CL(), Si(), SiC(), SiL()

Effective Texture: C(), CL(), Si(), SiC()

Depth to Mottles/Gley: 0 - 25(), 26 - 50()

Soil Drainage: Moderate well drain(), Imperfectly drained(), Poorly drained()

Parent Material: F(), GL(), M()

Soil Subgroup: O.G(), O.LG(), CU.R(), GLCU.R()

Site Index at 50 Years

white spruce: 16.4 m +/- 0.3 m; n=175

balsam poplar: 17.8 m +/- 1.8 m; n=7

aspen: 19.8 m +/- 1.4 m; n=12

Forage Production Summary (kg/ha)

(Refer to the Plant Community for detailed Stocking Rate Information)

	Forage Production (kg/ha)				Stocking Rate ha/aum(aum/ac)
	Grass	Forb	Shrub	Total	
h horsetail (hygric/rich)					
h1 shrubland	580	1272		1676	1.42(0.29)
PPB4 Willow/Horsetail/Marsh reed grass	580	1272		1852	2.02(0.20)
PPB5 Bebb willow/Marsh reed grass				1500	0.81(0.50)
h2 horsetail Sw	50	400	110	560	40.47(0.01)
PPE7 Sw/Horsetail	50	400	110	560	40.47(0.01)

17.1 h1 shrubland (n=26)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: horsetail (hygric/rich)

Characteristic Species

Tree

- [1] balsam poplar

Shrub

- [27] Scouler's willow
- [12] beaked willow
- [3] red-osier dogwood

Forb

- [10] common horsetail
- [1] Canada goldenrod

Grass

- [17] bluejoint
- [5] Undifferentiated sedge

*Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: SUBHYGRIC(), HYGRIC()

Nutrient Regime: PERMESOTROPHIC()

Topographic Position:

Slope:

Aspect:

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage: Moderate well drain(), Imperfectly drained()

Parent Material:

Soil Subgroup:

Soil Type:

Plant Community Types (n)

- | | |
|------|--|
| PPB4 | Willow/Horsetail/Marsh reed grass (13) |
| PPB5 | Bebb willow/Marsh reed grass (13) |

PPB4. Willow/Horsetail/Marsh reed grass
(*Salix Spp./Equisetum arvensis/Calamagrostis canadensis*)

n=13 This community is the same as the DMA12-Willow/Horsetail/Marsh reed grass community of the Dry Mixedwood Guide (Willoughby et al. 2006). This community is also similar to the Willow-Alder/Fern community described on moist, nutrient rich seepage areas in the Lower Foothills subregion (Lane et al. 2000). This community appears to be a transitional between the horsetail (hygric/rich) and shrubby fen (subhygric/rich) ecosites described by Beckingham and Archibald (1996). It has plant species characteristic of both ecosites. This community type is very productive but the high shrub cover and slope conditions make it difficult to graze. Horsetail, the principle forage species, is generally unpalatable to domestic livestock and can be poisonous to livestock in large amounts (Lodge et al. 1968).

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: h horsetail (hygric/rich)

Ecosite Phase: h1 shrubland

Plant Composition	Canopy Cover (%)			Environmental Variables			
	Mean	Range	Const.				
Shrub				Moisture Regime: SUBHYGRIC()			
BRACTED HONEYSUCKLE (<i>Lonicera involucrata</i>)	2	0-10	67	Nutrient Regime: PERMESOTROPHIC()			
RED-OSIER DOGWOOD (<i>Cornus stolonifera</i>)	5	0-30	83	Elevation (range): 667(-) M			
SALIX SPECIES (<i>Salix spp.</i>)	5	0-65	8	Slope:			
SCOULER'S WILLOW (<i>Salix scouleriana</i>)	53	0-90	92	Aspect:			
Forb				Soil Drainage: Moderate well drain(), Imperfectly drained()			
COMMON HORSETAIL (<i>Equisetum arvense</i>)	15	1-60	100	Soil Subgroup:			
COMMON NETTLE (<i>Urtica dioica</i>)	9	0-60	58	Soil Series:			
DEWBERRY (<i>Rubus pubescens</i>)	2	0-10	67	Soil Correlation:			
LARGE-LEAVED YELLOW AVENS (<i>Geum macrophyllum</i>)	1	0-3	58	Range Site Category:			
Grass				Ecological Status Score: 24			
BLUEJOINT (<i>Calamagrostis canadensis</i>)	22	0-97	75	Soil Exposure			
				Mean	Min	Max	
				%			
				Comment:			
				Forage Production (kg/ha) n=			
				Mean	Min	Max	
Forb				1272			
Grass				580			
Shrub							
Tree							
Total				1852	0	0	

Ecologically Sustainable Stocking Rate

2.02 (40.47-1.35) HA/AUM or 0.20 (0.01-0.30) AUM/AC

17.1.2

PPB5. Bebb willow/Marsh reed grass

(*Salix bebbiana*/*Calamagrostis canadensis*)

n=13 This community type is the same as DMA16 in the Dry Mixedwood Guide (Willoughby et al. 2006). It is found along the drier edges of marsh reed grass meadows and in moist depressions and represents the transition between the flat leaved willow and basket willow dominated shrublands and the upland forest. Bebb willow is an upland species that prefers well drained sites. This species of willow is often found in the understory of aspen and balsam poplar dominated community types. Increased flooding and prolonged waterlogging may result in the disappearance of Bebb willow and favour the growth of flat leaved willow. In contrast the continued drying of the site will favour the growth of balsam poplar. These sites are fairly productive but difficult to graze due to the moist ground conditions and heavy shrub cover which reduces access and mobility within the area.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: h horsetail (hygric/rich)

Ecosite Phase: h1 shrubland

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Tree				Moisture Regime: SUBHYGRIC(), HYGRIC()
BALSAM POPLAR (<i>Populus balsamifera</i>)	2	0-10	23	Nutrient Regime: PERMESOTROPHIC()
Shrub				Elevation (range): 600(-) M
BEAKED WILLOW (<i>Salix bebbiana</i>)	23	1-90	100	Slope:
PRICKLY ROSE (<i>Rosa acicularis</i>)	10	0-80	54	Aspect:
SNOWBERRY (BUCKBRUSH) (<i>Symphoricarpos occidentalis</i>)	1	0-10	31	Soil Drainage: Moderate well drain()
WILD RED RASPBERRY (<i>Rubus idaeus</i>)	2	0-10	46	Soil Subgroup:
Forb				Soil Series:
CANADA GOLDENROD (<i>Solidago canadensis</i>)	2	0-20	39	Soil Correlation:
COMMON DANDELION (<i>Taraxacum officinale</i>)	1	0-3	46	Range Site Category:
COMMON HORSETAIL (<i>Equisetum arvense</i>)	4	0-20	69	Ecological Status Score: 24
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	3	0-30	62	Soil Exposure
Grass				Mean Min Max
AWNLESS BROME (<i>Bromus inermis</i>)	1	0-10	23	%:
BLUEJOINT (<i>Calamagrostis canadensis</i>)	12	0-60	62	Comment:
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)	2	0-10	31	Forage Production (kg/ha) n=
SEDGE SPECIES (<i>Carex spp.</i>)	10	1-40	100	Mean Min Max
				Forb
				Grass
				Shrub
				Tree
				Undifferentiated
				Total

Ecologically Sustainable Stocking Rate

0.81 (0.47-0.40) HA/AUM or 0.50 (0.01-1.01) AUM/AC

The forage production amount given is an estimate.

17.2 **h2** horsetail Sw (n=5)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: horsetail (hygric/rich)

Characteristic Species

Tree

- [44] white spruce
- [9] white birch*
- [3] balsam poplar*

Shrub

- [3] prickly rose
- [3] red-osier dogwood
- [1] low-bush cranberry

Forb

- [32] common horsetail
- [3] bunchberry
- [1] bishop's-cap
- [1] dewberry

Grass

- [1] bluejoint

*Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: HYGRIC()

Nutrient Regime: PERMESOTROPHIC()

Topographic Position:

Slope:

Aspect:

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage: Imperfectly drained()

Parent Material:

Soil Subgroup:

Soil Type:

Plant Community Types (n)

PPE7 Sw/Horsetail (5)

17.2.1

PPE7. Sw/Horsetail (*Picea glauca/Equisetum arvense*)

n=5 This community type is the same as DMD14 in the Dry Mixedwood Guide (Willoughby et al. 2006). It is wet and nutrient rich. These sites are commonly found on fluvial or glaciolacustrine parent materials where flooding or seepage enhances the substrate nutrient supply. With high water tables, wet soil conditions organic matter tends to accumulate which favours the growth of horsetail. Generally horsetail is unpalatable to livestock and the wet ground conditions limit access.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: h horsetail (hygric/rich)

Ecosite Phase: h2 horsetail Sw

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Tree				Moisture Regime: HYGRIC()
BALSAM POPLAR (<i>Populus balsamifera</i>)	3	0-10	60	Nutrient Regime: PERMESOTROPHIC()
WHITE BIRCH (<i>Betula papyrifera</i>)	9	0-40	80	Elevation (range): 600(-) M
WHITE SPRUCE (<i>Picea glauca</i>)	44	20-60	100	Slope:
Shrub				Aspect:
BRACKETED HONEYSUCKLE (<i>Lonicera involucrata</i>)	1	0-3	80	Soil Drainage: Moderate well drain(), Poorly drained()
LOW-BUSH CRANBERRY (<i>Viburnum edule</i>)	1	0-3	60	Soil Subgroup:
PRICKLY ROSE (<i>Rosa acicularis</i>)	3	1-10	100	Soil Series:
RED-OSIER DOGWOOD (<i>Cornus stolonifera</i>)	3	0-10	80	Soil Correlation:
Forb				Range Site Category:
BISHOP'S-CAP (<i>Mitella nuda</i>)	1	0-3	80	Ecological Status Score: 18
BUNCHBERRY (<i>Cornus canadensis</i>)	3	0-10	80	Soil Exposure
COMMON HORSETAIL (<i>Equisetum arvense</i>)	32	30-40	100	Mean Min Max
DEWBERRY (<i>Rubus pubescens</i>)	1	1-3	100	%:
Grass				Comment:
BLUEJOINT (<i>Calamagrostis canadensis</i>)	1	0-3	60	Forage Production (kg/ha) n=
DROOPING WOOD-REED (<i>Cinna latifolia</i>)	1	0-3	40	Mean Min Max
				Forb 400
				Grass 50
				Shrub 110
				Tree
				Total 560 0 0

Ecologically Sustainable Stocking Rate

40.47 (40.47-40.47) HA/AUM or 0.01 (0.01-0.01) AUM/AC

Generally this community type would be rated as non-use in the calculation of carrying capacity for a grazing disposition, but in some cases it may be used.

The forage production amount given is an estimate.

18.0 hh bog (subhygric/very poor) (n=3)

Natural Subregion: PEACE RIVER PARKLAND

General Description

The bog ecosite commonly has organic soils consisting of slowly decomposing peat moss. They are poor to very poorly drained and have a very poor to poor nutrient regime. This ecosite occupies level and depressional areas where water tends to be stagnant and impeded drainage or high water tables enhance the accumulation of organic matter. Stunted black spruce form a sparse canopy on the treed phase of the bog ecosite.

treed bog



Successional Relationships

The bog ecosite is an edaphic climax that is maintained by water tables. The hydrarch succession to the bog ecosite is extremely slow.

Indicator Species

common Labrador tea	black spruce
cloudberry	peat moss
bog cranberry	

Site Characteristics

Moisture Regime: SUBHYDRIC()
Nutrient Regime: OLIGOTROPHIC()
Topographic Poistion:
Slope:
Aspect:

Soil Characteristics

Organic Thickness: => 80 cm(90)
Humus Form: MOR(10), PEATYMOR(90)
Surface Texture:
Effective Texture:
Depth to Mottles/Gley: Not Applicable()
Soil Drainage: Poorly drained()
Parent Material: O(80)
Soil Subgroup: TY.F(30), T.M(10)

Site Index at 50 Years

black spruce: 9.8 m +/- 0.5 m; n=32

Forage Production Summary (kg/ha)

(Refer to the Plant Community for detailed Stocking Rate Information)

hh bog (subhygric/very poor)	Forage Production (kg/ha)			Total	Stocking Rate ha/aum(aum/ac)
	Grass	Forb	Shrub		
hh1 treed bog	10	40	50	100	40.47(0.01)
PPE3 Sb-L/Labrador tea/Moss	10	40	50	100	40.47(0.01)

18.1 hh1 treed bog (n=3)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: bog (subhygric/very poor)

Characteristic Species

Tree

- [30] black spruce
- [10] tamarack

Shrub

- [24] bog birch
- [23] common Labrador tea
- [21] Undifferentiated willow

Forb

- [21] common horsetail

Grass

- [3] bluejoint

Moss

- [95] Undifferentiated moss - all Gener

*Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: SUBHYDRIC()

Nutrient Regime: OLIGOTROPHIC()

Topographic Position:

Slope:

Aspect:

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage: Poorly drained()

Parent Material:

Soil Subgroup:

Soil Type:

Plant Community Types (n)

PPE3 Sb-Lt/Labrador tea/Moss (3)

18.1.1

PPE3. Sb-Lt/Labrador tea/Moss

(*Picea mariana*-*Larix laricina*/*Ledum groenlandicum*/Moss)

n=3 This community type is the same as DMD9 in the Dry Mixedwood Guide (Willoughby et al. 2006). This community type appears to be related to the bog ecosite described by Beckingham and Archibald (1996). The bog ecosite commonly has organic soils consisting of slowly decomposing peat moss. This community type has poor productivity and accessibility.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: hh bog (subhygric/very poor)

Ecosite Phase: hh1 treed bog

Plant Composition		Canopy Cover (%)		Environmental Variables				
		Mean	Range	Const.				
Tree					Moisture Regime: SUBHYDRIC()			
BLACK SPRUCE (<i>Picea mariana</i>)	30	10-60	100		Nutrient Regime: OLIGOTROPHIC()			
TAMARACK (<i>Larix laricina</i>)	10	1-15	100		Elevation (range): 591(576-606) M			
Shrub					Slope:			
BOG BIRCH (<i>Betula glandulosa</i>)	24	0-39	100		Aspect:			
COMMON LABRADOR TEA (<i>Ledum groenlandicum</i>)	23	10-35	100		Soil Drainage: Poorly drained()			
SALIX SPECIES (<i>Salix spp.</i>)	21	8-35	100		Soil Subgroup:			
Forb					Soil Series:			
COMMON HORSETAIL (<i>Equisetum arvense</i>)	21	0-45	66		Soil Correlation:			
DWARF BRAMBLE (<i>Rubus pedatus</i>)	8	0-25	66		Range Site Category:			
DWARF SCOURING-RUSH (<i>Equisetum scirpoides</i>)	8	0-25	33		Ecological Status Score: 18			
Grass					Soil Exposure			
BEAKED SEDGE (<i>Carex rostrata</i>)	4	0-7	66		Mean	Min	Max	
BLUEJOINT (<i>Calamagrostis canadensis</i>)	3	1-4	100		%			
FOWL BLUEGRASS (<i>Poa palustris</i>)	1	0-2	33		Comment:			
GOLDEN SEDGE (<i>Carex aurea</i>)	5	0-15	33		Forage Production (kg/ha) n=			
Moss					Mean	Min	Max	
UNDIFFERENTIATED MOSS - ALL GENERA (<i>Moss spp</i>)	95	10-60	100		Forb	40		
					Grass	10		
					Shrub	50		
					Tree			
					Total	100	0	0
					Ecologically Sustainable Stocking Rate			
					40.47 (40.47-40.47) HA/AUM or 0.01 (0.01-0.01) AUM/AC			

Generally this community type would be rated as non-use in the calculation of carrying capacity for a grazing disposition, but in some cases it may be used.

19.0 i solonetzic (subhydryc) (n=2)

Natural Subregion: PEACE RIVER PARKLAND

General Description

This ecological site represents saline seepage areas which are scattered throughout the Peace Parkland subregion. Saline tolerant plants like baltic rush, foxtail barley, Nuttalls saltgrass and sea side arrowgrass often dominate the vegetation of this ecological site.



Successional Relationships

The high moisture and salinity of the soil generally limits tree and shrub growth on these sites and the site often remains dominated by graminoid plant species. Heavy grazing pressure on these sites will often lead to a plant community dominated by foxtail barley.

Indicator Species

sedge species	foxtail barley
wire rush	Nuttall's salt-meadow grass
seaside arrow-grass	

Forage Production Summary (kg/ha)

(Refer to the Plant Community for detailed Stocking Rate Information)

i solonetzic (subhydryc)	Forage Production (kg/ha)			Stocking Rate ha/aum(aum/ac)
	Grass	Forb	Shrub	
i1 rush	1050	200		22.26(0.02)
PPA17 Nuttalls salt grass	1100			4.05(0.10)
PPA18 Rush meadow	1000	200		40.47(0.01)

Site Characteristics

Moisture Regime: SUBHYGRIC(), SUBHYDRIC()

Nutrient Regime: SUBMESOTROPHIC()

Topographic Poistion: Depression()

Slope: 0 - 0.5(), 0.5 - 2.5()

Aspect: Variable()

Soil Characteristics

Organic Thickness: 0 - 5 cm(), 6 - 15 cm()

Humus Form: FIBRIMOR()

Surface Texture: C()

Effective Texture: C()

Depth to Mottles/Gley: 0 - 25()

Soil Drainage: Imperfectly drained(), Poorly drained()

Parent Material: FL(), L()

Soil Subgroup:

19.1 i1 rush (n=2)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: solonetzic (subhydric)

Characteristic Species

Forb

- [2] seaside arrow-grass*

Grass

- [30] Nuttall's salt-meadow grass*
- [30] wire rush*
- [10] foxtail barley
- [7] sedge species
- [2] tufted hair grass
- [1] salt grass

*Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: SUBHYGRIC(), SUBHYDRIC()

Nutrient Regime: SUBMESOTROPHIC()

Topographic Position: Depression()

Slope: 0 - 0.5(), 0.5 - 2.5()

Aspect: Variable()

Soil Characteristics

Organic Thickness: 0 - 5 cm(), 6 - 15 cm()

Humus Form: FIBRIMOR()

Surface Texture: Fibric(), CL()

Effective Texture: C()

Depth to Mottles/Gley: 0 - 25()

Soil Drainage: Imperfectly drained(), Poorly drained()

Parent Material:

Soil Subgroup:

Soil Type:

Plant Community Types (n)

PPA18 Rush meadow (1)

PPA17 Nuttalls salt grass (1)

19.1.1

PPA17. Nuttalls salt grass

(*Puccinellia nuttalliana*)

n=1 This community is characteristic of saline and alkaline alluvial deposits adjacent to ponds, lake margins or seepage areas. This community type is fairly productive and heavy grazing will often lead to a community type dominated by foxtail barley.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: i solonetzic (subhydric)

Ecosite Phase: i1 rush

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Forb				Moisture Regime: SUBHYDRIC(100)
SEASIDE ARROW-GRASS (<i>Triglochin maritima</i>)	1		100	Nutrient Regime: SUBMESOTROPHIC()
Grass				Elevation (range): 717(-) M
FOXTAIL BARLEY (<i>Hordeum jubatum</i>)	12		100	Slope: 0.5 - 2.5(100)
NUTTALL'S SALT-MEADOW GRASS (<i>Puccinellia nuttalliana</i>)	69		100	Aspect: Westerly()
SALT GRASS (<i>Distichlis stricta</i>)	1		100	Soil Drainage: Imperfectly drained(100)
SEDGE SPECIES (<i>Carex spp.</i>)	3		100	Soil Subgroup:
SLENDER WHEAT GRASS (<i>Agropyron trachycaulum</i>)	1		100	Soil Series:
				Soil Correlation:
				Range Site Category:
				Ecological Status Score: 24

Soil Exposure	Mean	Min	Max
%:			

Comment:

Forage Production (kg/ha) n=			
	Mean	Min	Max
Forb			
Grass	1100		
Shrub			
Tree			
Total	1100	0	0

Ecologically Sustainable Stocking Rate

4.05 (4.05-4.05) HA/AUM or 0.10 (0.10-0.10) AUM/AC

19.1.2

PPA18. Rush meadow

(*Juncus balticus*)

n=1 This community type was described on slightly saline seepage and was scattered amongst aspen and black spruce. The wetter saline edges of this community were dominated by Nuttall's salt grass and the drier uplands were dominated by a Purple oatgrass-Intermediate oatgrass dominated community. Bailey et al. (1992) described rush dominated meadows in a saline sequence in the Yukon and Thompson and Hansen (2002) felt that rush dominated meadows were indicative of heavy grazing pressure in Southern Alberta. Rush species are generally unpalatable to livestock.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: i solonetzic (subhydric)

Ecosite Phase: i1 rush

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Forb				Moisture Regime: HYGRIC(100)
MARSH SPEEDWELL (<i>Veronica scutellata</i>)	2		100	Nutrient Regime: SUBMESOTROPHIC(100)
SEASIDE ARROW-GRASS (<i>Triglochin maritima</i>)	2		100	Elevation (range): 717(-) M
WESTERN WILLOW ASTER (<i>Aster hesperius</i>)	1		100	Slope: 0.5 - 2.5(100)
Grass				Aspect: Westerly(100)
FOXTAIL BARLEY (<i>Hordeum jubatum</i>)	8		100	Soil Drainage: Imperfectly drained(100)
SEDGE SPECIES (<i>Carex spp.</i>)	13		100	Soil Subgroup:
SLENDER WHEAT GRASS (<i>Agropyron trachycaulum</i>)	5		100	Soil Series:
TUFTED HAIR GRASS (<i>Deschampsia cespitosa</i>)	9		100	Soil Correlation:
WIRE RUSH (<i>Juncus balticus</i>)	60		100	Range Site Category:
				Ecological Status Score: 24

Soil Exposure	Mean	Min	Max
%:			

Comment:

Forage Production (kg/ha) n=

	Mean	Min	Max
Forb	200		
Grass	1000		
Shrub			
Tree			
Total	1200	0	0

Ecologically Sustainable Stocking Rate

40.47 (40.47-40.47) HA/AUM or 0.01 (0.01-0.01) AUM/AC

Generally this community type would be rated as non-use in the calculation of carrying capacity for a grazing disposition, but in some cases it may be used.

20.0 j rich fen (subhydic/rich) (n=108)

Natural Subregion: PEACE RIVER PARKLAND

General Description

The rich fen ecological site is characterized by flowing water and alkaline nutrient-rich conditions. This ecological site occupies level and depressional areas where the water table is at or near the surface for a portion of the growing season. Shrubs (bog birch, willow) form the canopy of the shrub phase and sedges and marsh reedgrass dominate the graminoid phase.



Site Characteristics

Moisture Regime: SUBHYGRIC(), HYGRIC(), SUBHYDRIC()

Nutrient Regime: PERMESOTROPHIC()

Topographic Poistion:

Slope:

Aspect:

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage: Imperfectly drained(), Poorly drained(), Very poorly drained()

Parent Material:

Soil Subgroup:

Successional Relationships

Thompson and Hansen, 2003 describe the successional relationships. If the site is heavily utilized, such as during drought years, fowl bluegrass, spangletop, water-hemlock, wild mint, marsh skullcap and marsh hedge-nettle can invade the community. Severe disturbance can shift the community to a northern reed grass, spangletop or bluegrass dominated community, and occasionally alter the community to a Kentucky bluegrass community.

Indicator Species

bluejoint	northern reed grass
water sedge	awned sedge
beaked sedge	wild mint
Kentucky bluegrass	pale persicaria
flat-leaved willow	Scouler's willow
common cattail	

Forage Production Summary (kg/ha)

(Refer to the Plant Community for detailed Stocking Rate Information)

	Forage Production (kg/ha)			Total	Stocking Rate ha/aum(aum/ac)
	Grass	Forb	Shrub		
j rich fen (subhydic/rich)					
j1 graminoid rich fen	2161	856	40	3030	0.58(0.69)
PPA11 Sedge meadow	3673	73	40	3786	0.54(0.75)
PPA14 Marsh reed grass meadow	1427	812		2239	0.40(1.01)
PPC11 Kentucky bluegrass/Dandelion	1382	1682		3064	0.81(0.50)
j2 shrubby rich fen	1240	604	8	1848	1.00(0.41)
PBB6 Willow/Marsh reed grass	1325	75		1400	0.81(0.50)
PBB7 Willow/Kentucky bluegrass/Dandelion	1100	1250		2350	1.35(0.30)

Forage Production Summary (kg/ha)

(Refer to the Plant Community for detailed Stocking Rate Information)

	Forage Production (kg/ha)				Stocking Rate ha/aum(aum/ac)
	Grass	Forb	Shrub	Total	
j rich fen (subhydric/rich)					
j2 shrubby rich fen	1240	604	8	1848	1.00(0.41)
PPB8 Willow/Marsh reed grass-Kentucky bluegrass	1861	621	5	2487	1.01(0.40)
PPB9 Willow/Sedge	673	470	11	1154	0.81(0.50)

20.1 j1 graminoid rich fen (n=53)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: rich fen (subhydic/rich)

Characteristic Species

Shrub

[2] Salix species

Forb

[1] curled dock

[1] wild vetch

[1] wild mint

[1] marsh skullcap

Grass

[19] Kentucky bluegrass

[15] bluejoint

[12] awned sedge

[8] beaked sedge

[7] water sedge

*Species characteristic of the phase but
occurring in <70% for the sample plots with a
prominence value <20.

Site Characteristics

Moisture Regime: SUBHYGRIC(), HYGRIC(), SUBHYDRIC()

Nutrient Regime: PERMESOTROPHIC()

Topographic Position:

Slope:

Aspect:

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage: Imperfectly drained(), Poorly drained(), Very poorly drained()

Parent Material:

Soil Subgroup:

Soil Type:

Plant Community Types (n)

PPA11 Sedge meadow (39)

PPA14 Marsh reed grass meadow (12)

PPC11 Kentucky bluegrass/Dandelion (2)

20.1.1

PPA11. Sedge meadow (*Carex aquatilis*, *C.rostrata*, *C.atherodes*)

n=39 This community is the same as the DMA1-Sedge Meadow community of the Dry Mixedwood Guide (Willoughby et al. 2006). This wetland community type is found near fresh water and can be dominated by awned sedge, water sedge, or beaked sedge. The sedge meadow is a poorly drained community. As one moves to the drier edges, marsh reed grass becomes predominant. Willows will invade into both the sedge and marsh reed grass dominated meadows. The sedge meadow community is very productive, but the high water table, particularly in the spring when the sedge species are most palatable, restricts livestock movement. One study done in the Yukon found that crude protein on these meadows declined from a high of 10% in May to less than 5% in September (Bailey et al. 1992). Beaked sedge found in abundance in this community is usually associated with nitrogen rich conditions and moving water (Brierly et al. 1985). Water sedge is often found in abundance in this community type and is associated with calcium rich stagnant water (MacKinnon et al. 1992).

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: j rich fen (subhydric/rich)

Ecosite Phase: j1 graminoid rich fen

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Shrub				Moisture Regime: HYGRIC(), SUBHYDRIC()
UNDIFFERENTIATED WILLOW (<i>Salix</i>)	2	0-30	44	Nutrient Regime: PERMESOTROPHIC()
Forb				Elevation (range): 586(579-600) M
GREEN SORREL (<i>Rumex acetosa</i>)	1	0-2	12	Slope:
MARSH SKULLCAP (<i>Scutellaria galericulata</i>)	1	0-1	44	Aspect:
MARSH WILLOWHERB (<i>Epilobium palustre</i>)	1	0-3	2	Soil Drainage: Poorly drained(), Very poorly drained()
WILD MINT (<i>Mentha arvensis</i>)	1	0-4	22	Soil Subgroup:
Grass				Soil Series:
AWNED SEDGE (<i>Carex atherodes</i>)	35	0-97	65	Soil Correlation:
BEAKED SEDGE (<i>Carex rostrata</i>)	23	0-85	56	Range Site Category:
BLUEJOINT (<i>Calamagrostis canadensis</i>)	3	0-11	17	Ecological Status Score: 24
WATER SEDGE (<i>Carex aquatilis</i>)	21	0-90	51	
				Soil Exposure
				Mean Min Max
				%:
				Comment:
				Forage Production (kg/ha) n=
				Mean Min Max
				Forb 73 80
				Grass 3673 1054 5028
				Shrub 40 120
				Tree
				Total 3786 1054 5228

Ecologically Sustainable Stocking Rate

0.54 (2.02-0.31) HA/AUM or 0.75 (0.20-1.31) AUM/AC

20.1.2

PPA14. Marsh reed grass meadow (*Calamagrostis canadensis*, *C.inexpansa*, *C.stricta*)

n=12 This community type is the same as DMA2 in the Dry Mixedwood Guide (Willoughby et al. 2006). It is found on the edges of sedge meadows and moist draws where the water table is lower and can be dominated by any of these three species of reed grass. The lower water table makes this community accessible for most of the grazing season. Willow will invade onto these sites to form the Willow/Marsh reed grass community type (PPB6). Increased grazing pressure on these sites will cause marsh reed grass to decline and there will be an invasion of Kentucky bluegrass and dandelion. These sites are highly productive.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: j rich fen (subhydric/rich)

Ecosite Phase: j1 graminoid rich fen

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Shrub				Moisture Regime: SUBHYGRIC(), HYGRIC()
SALIX SPECIES (<i>Salix spp.</i>)	1	0-10	50	Nutrient Regime: PERMESOTROPHIC()
Forb				Elevation (range): 603(600-606) M
COMMON NETTLE (<i>Urtica dioica</i>)	3	0-10	33	Slope:
WILD MINT (<i>Mentha arvensis</i>)	2	0-20	40	Aspect:
Grass				Soil Drainage: Poorly drained()
BLUEJOINT (<i>Calamagrostis canadensis</i>)	42	0-97	67	Soil Subgroup:
NARROW REED GRASS (<i>Calamagrostis stricta</i>)	15	0-70	25	Soil Series:
NORTHERN REED GRASS (<i>Calamagrostis inexpansa</i>)	10	0-90	17	Soil Correlation:
WATER SEDGE (<i>Carex aquatilis</i>)	1	0-3	33	Range Site Category:
WIRE RUSH (<i>Juncus balticus</i>)	1	0-10	25	Ecological Status Score: 24
				Soil Exposure
				Mean Min Max
				%:

Comment:

Forage Production (kg/ha) n=

	Mean	Min	Max
Forb	812	450	1174
Grass	1427	1254	1600
Shrub			
Tree			
Total	2239	1704	2774

Ecologically Sustainable Stocking Rate

0.40 (0.81-0.34) HA/AUM or 1.01 (0.50-1.19) AUM/AC

20.1.3

PPC11. Kentucky bluegrass/Dandelion

(*Poa pratensis*/*Taraxacum officinale*)

n=2 This community type is the same as DMA9 in the Dry Mixedwood Guide (Willoughby et al. 2006). It represents a Marsh reed grass meadow that has undergone heavy prolonged grazing pressure and is now dominated by Kentucky bluegrass, rough hair grass and dandelion. This community is a fairly productive community type and the species are generally palatable to livestock when grazed in the vegetative state, but the extremely heavy grazing pressure which is needed to displace the native grass species indicates that there are livestock distribution problems that should be addressed. It is different from the PPC8 Kentucky bluegrass/Low forb community by having fewer forbs and is found on wetter sites.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: j rich fen (subhydric/rich)

Ecosite Phase: j1 graminoid rich fen

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Forb				Moisture Regime: SUBHYGRIC(), HYGRIC()
COMMON DANDELION (<i>Taraxacum officinale</i>)	30	0-60	50	Nutrient Regime: PERMESOTROPHIC()
COMMON HORSETAIL (<i>Equisetum arvense</i>)	4	0-7	50	Elevation (range): 697(-) M
COMMON YARROW (<i>Achillea millefolium</i>)	6	0-11	50	Slope:
CREAM-COLORED VETCHLING (<i>Lathyrus ochroleucus</i>)	6	0-12	50	Aspect:
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	7	0-14	50	Soil Drainage: Imperfectly drained()
WILD VETCH (<i>Vicia americana</i>)	3	3-4	100	Soil Subgroup:
Grass				Soil Series:
FRINGED BROME (<i>Bromus ciliatus</i>)	2	0-4	50	Soil Correlation:
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)	58	18-97	100	Range Site Category:
ROUGH HAIR GRASS (<i>Agrostis scabra</i>)	8	0-15	50	Ecological Status Score: 0
SLENDER WHEAT GRASS (<i>Agropyron trachycaulum</i>)	3	0-5	50	
				Soil Exposure
				Mean Min Max
				%:
				Comment:
				Forage Production (kg/ha) n=
				Mean Min Max
				Forb 1682
				Grass 1382
				Shrub
				Tree
				Total 3064 0 0

Ecologically Sustainable Stocking Rate

0.81 (1.35-0.40) HA/AUM or 0.50 (0.30-1.01) AUM/AC

20.2 j2 shrubby rich fen (n=55)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: rich fen (subhydric/rich)

Characteristic Species

Shrub

- [12] flat-leaved willow
- [6] Salix species
- [3] basket willow
- [2] beaked willow
- [2] Scouler's willow

Forb

- [13] common dandelion

Grass

- [14] bluejoint
- [4] awned sedge
- [4] Kentucky bluegrass
- [3] beaked sedge
- [2] water sedge

*Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: SUBHYGRIC(), SUBHYDRIC()

Nutrient Regime: PERMESOTROPHIC()

Topographic Position:

Slope:

Aspect:

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage: Imperfectly drained(), Poorly drained()

Parent Material:

Soil Subgroup:

Soil Type:

Plant Community Types (n)

- | | |
|------|--|
| PPB9 | Willow/Sedge (26) |
| PPB6 | Willow/Marsh reed grass (16) |
| PPB8 | Willow/Marsh reed grass-Kentucky bluegrass (6) |
| PPB7 | Willow/Kentucky bluegrass/Dandelion (7) |

20.2.1

PPB6. Willow/Marsh reed grass

(*Salix* spp./*Calamagrostis canadensis*)

n=16 This community type is the same as DMA10a in the Dry Mixedwood Guide (Willoughby et al. 2006). It is found along the edges of sedge and marsh reed grass meadows and in moist depressions. Predominantly flat leaved willow becomes established at the edges of these meadows due to the shorter duration of standing water. Increased flooding and prolonged waterlogging may result in the disappearance of willow and a transition to a marsh reed grass and water sedge meadow. These sites are fairly productive but difficult to graze due to the moist ground conditions and heavy shrub cover which reduces access and mobility within the area.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: j rich fen (subhydric/rich)

Ecosite Phase: j2 shrubby rich fen

Plant Composition				Environmental Variables			
	Mean	Range	Const.				
Shrub				Moisture Regime: SUBHYDRIC()			
BASKET WILLOW (<i>Salix petiolaris</i>)	3	0-20	38	Nutrient Regime: PERMESOTROPHIC()			
BEAKED WILLOW (<i>Salix bebbiana</i>)	3	0-20	44	Elevation (range): 606(-) M			
FLAT-LEAVED WILLOW (<i>Salix planifolia</i>)	26	0-70	75	Slope:			
Forb				Aspect:			
COMMON HORSETAIL (<i>Equisetum arvense</i>)	1	0-10	43	Soil Drainage: Poorly drained()			
COMMON NETTLE (<i>Urtica dioica</i>)	1	0-5	56	Soil Subgroup:			
MARSH HEDGE-NETTLE (<i>Stachys palustris</i>)	2	0-10	38	Soil Series:			
MARSH SKULLCAP (<i>Scutellaria galericulata</i>)	1	0-10	38	Soil Correlation:			
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	7	0-80	31	Range Site Category:			
Grass				Ecological Status Score: 24			
AWNED SEDGE (<i>Carex atherodes</i>)	2	0-20	44	Soil Exposure			
BEAKED SEDGE (<i>Carex rostrata</i>)	2	0-10	38	Mean Min Max			
BLUEJOINT (<i>Calamagrostis canadensis</i>)	22	0-70	94	%			
FOWL BLUEGRASS (<i>Poa palustris</i>)	2	0-10	38	Comment:			
				Forage Production (kg/ha) n=			
				Mean	Min	Max	
				Forb	75	50	200
				Grass	1325	900	1750
				Shrub			
				Tree			
				Total	1400	950	1950

Ecologically Sustainable Stocking Rate

0.81 (40.47-0.40) HA/AUM or 0.50 (0.01-1.01) AUM/AC

20.2.2

PPB7. Willow/Kentucky bluegrass/Dandelion

(*Salix spp./Poa pratensis/Taraxacum officinale*)

n=7 This community type is the same as DMA14 in the Dry Mixedwood Guide (Willoughby et al. 2006). It is very similar to the Willow/Marsh reed grass community type, but has been heavily grazed favouring the growth of Kentucky bluegrass and dandelion. Continued heavy grazing pressure eventually leads to an understory community that is dominated by Kentucky bluegrass and dandelion

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: j rich fen (subhydric/rich)

Ecosite Phase: j2 shrubby rich fen

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Shrub				Moisture Regime: SUBHYGRIC()
FLAT-LEAVED WILLOW (<i>Salix planifolia</i>)	11	0-40	29	Nutrient Regime: PERMESOTROPHIC()
SALIX SPECIES (<i>Salix spp.</i>)	8	0-20	85	Elevation (range): 603(600-606) M
SCOULER'S WILLOW (<i>Salix scouleriana</i>)	9	0-50	29	Slope:
Forb				Aspect:
COMMON DANDELION (<i>Taraxacum officinale</i>)	32	0-80	71	Soil Drainage: Imperfectly drained()
COMMON PLANTAIN (<i>Plantago major</i>)	1	0-5	21	Soil Subgroup:
WILD MINT (<i>Mentha arvensis</i>)	2	0-10	57	Soil Series:
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	2	0-10	57	Soil Correlation:
Grass				Range Site Category:
AWNLESS BROME (<i>Bromus inermis</i>)	4	0-30	14	Ecological Status Score: 8
BLUEJOINT (<i>Calamagrostis canadensis</i>)	5	0-10	86	Soil Exposure
FOWL BLUEGRASS (<i>Poa palustris</i>)	4	0-10	71	Mean
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)	10	0-40	43	Min
				Max
				%:
				Comment:
				Forage Production (kg/ha) n=
				Mean
				Min
				Max
				Forb
				Grass
				Shrub
				Tree
				Total

Ecologically Sustainable Stocking Rate

1.35 (40.47-0.67) HA/AUM or 0.30 (0.01-0.60) AUM/AC

20.2.3 PPB8. Willow/Marsh reed grass-Kentucky bluegrass (*Salix spp./Calamagrostis canadensis-Poa pratensis*)

n=6 This community type is the same as DMA11 in the Dry Mixedwood Guide (Willoughby et al 2006). It is very similar to the Willow/Marsh reed grass community type (PPB6), but has been heavily grazed favouring the growth of Kentucky bluegrass and dandelion. Continued heavy grazing pressure will eventually lead to a understory community that is similar to the Willow/Kentucky bluegrass/dandelion dominated community type (PPB7).

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: j rich fen (subhydric/rich)

Ecosite Phase: j2 shrubby rich fen

Plant Composition		Canopy Cover (%)		Environmental Variables				
		Mean	Range	Const.				
Shrub					Moisture Regime: SUBHYGRIC()			
SALIX SPECIES (<i>Salix spp.</i>)		17	10-35	100	Nutrient Regime: PERMESOTROPHIC()			
SNOWBERRY (BUCKBRUSH) (<i>Symphoricarpos occidentalis</i>)		1	0-1	17	Elevation (range): 603(600-606) M			
Forb					Slope:			
BUSHY CINQUEFOIL (<i>Potentilla paradoxa</i>)		1	0-2	67	Aspect:			
COMMON DANDELION (<i>Taraxacum officinale</i>)		15	1-41	100	Soil Drainage: Imperfectly drained()			
WILD MINT (<i>Mentha arvensis</i>)		2	0-6	83	Soil Subgroup:			
Grass					Soil Series:			
BLUEJOINT (<i>Calamagrostis canadensis</i>)		15	3-42	100	Soil Correlation:			
FOXTAIL BARLEY (<i>Hordeum jubatum</i>)		1	0-3	83	Range Site Category:			
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)		17	4-32	100	Ecological Status Score: 16			
WIRE RUSH (<i>Juncus balticus</i>)		2	0-9	17				
					Soil Exposure			
					Mean	Min	Max	
					%			
					Comment:			
					Forage Production (kg/ha) n=			
					Mean	Min	Max	
					Forb	621	176	2450
					Grass	1861	1800	1922
					Shrub	5		28
					Tree			
					Total	2487	1976	4400

Ecologically Sustainable Stocking Rate

1.01 (2.02-0.50) HA/AUM or 0.40 (0.20-0.81) AUM/AC

20.2.4

PPB9. Willow/Sedge

(*Salix spp./Carex spp.*)

n=26 This community type is the same as DMA10 in the Dry Mixedwood Guide (Willoughby et al. 2006). It is found along the edges of sedge meadows and in moist depressions. Generally flat leaved willow and basket willow become established at the edges of the sedge meadows due to the shorter duration of standing water. Increased flooding and prolonged waterlogging may result in the disappearance of willow and a transition to a water sedge meadow. These sites are fairly productive but difficult to graze due to the moist ground conditions and heavy shrub cover which reduces access and mobility within the area.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: j rich fen (subhydric/rich)

Ecosite Phase: j2 shrubby rich fen

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Shrub				Moisture Regime: SUBHYDRIC()
BASKET WILLOW (<i>Salix petiolaris</i>)	7	0-60	37	Nutrient Regime: PERMESOTROPHIC()
BEAKED WILLOW (<i>Salix bebbiana</i>)	5	0-65	47	Elevation (range): 588(576-606) M
FLAT-LEAVED WILLOW (<i>Salix planifolia</i>)	11	0-90	52	Slope:
Forb				Aspect:
ARROW-LEAVED COLTSFOOT (<i>Petasites sagittatus</i>)	2	0-30	41	Soil Drainage: Poorly drained()
COMMON DANDELION (<i>Taraxacum officinale</i>)	3	0-22	30	Soil Subgroup:
MARSH SKULLCAP (<i>Scutellaria galericulata</i>)	1	0-10	52	Soil Series:
WILD MINT (<i>Mentha arvensis</i>)	1	0-5	44	Soil Correlation:
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	2	0-18	29	Range Site Category:
Grass				Ecological Status Score: 24
AWNED SEDGE (<i>Carex atherodes</i>)	12	0-70	59	Soil Exposure
BEAKED SEDGE (<i>Carex rostrata</i>)	11	1-42	70	Mean
BLUEJOINT (<i>Calamagrostis canadensis</i>)	2	0-11	48	Min
WATER SEDGE (<i>Carex aquatilis</i>)	9	0-80	63	Max
				%:
				Comment:
				Forage Production (kg/ha) n=
				Mean
				Min
				Max
				Forb
				Grass
				Shrub
				Tree
				Total

Ecologically Sustainable Stocking Rate

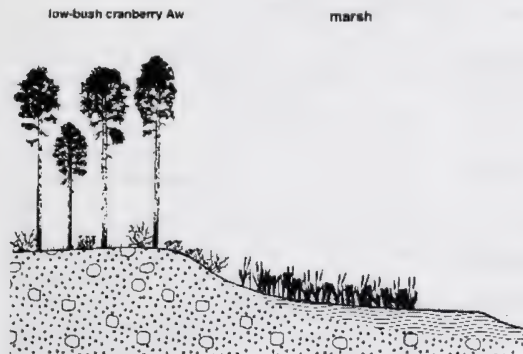
0.81 (40.47-0.40) HA/AUM or 0.50 (0.01-1.01) AUM/AC

21.0 k marsh (hydric/rich) (n=21)

Natural Subregion: PEACE RIVER PARKLAND

General Description

Very wet site usually with standing water, along margins of lakes, rivers, streams, ponds, or abandoned channels of rivers and streams. Soils are Gleysols with an accumulation of organic matter overlaying fine silt and clay deposits. Mottling or gleying in mineral horizons is common. Mineral soils are fine textured silt mud and have layers of organic accumulation. Soils are poorly to very poorly drained.



Successional Relationships

As these sites dry out, sedge species often dominate. If disturbed when the site is dry, foxtail barley, pale persicaria, creeping spike-rush, slough grass and wild mint can invade the site.

Indicator Species

awned sedge	swamp horsetail
foxtail barley	wild mint
pale persicaria	Scouler's willow
common cattail	

Site Characteristics

Moisture Regime: HYGRIC(), SUBHYDRIC()

Nutrient Regime: PERMESOTROPHIC()

Topographic Poistion:

Slope:

Aspect:

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage: Poorly drained(), Very poorly drained()

Parent Material:

Soil Subgroup:

Forage Production Summary (kg/ha)

(Refer to the Plant Community for detailed Stocking Rate Information)

k marsh (hydric/rich)	Forage Production (kg/ha)			Total	Stocking Rate ha/aum(aum/ac)
	Grass	Forb	Shrub		
k1 marsh	4300			3150	40.47(0.01)
PPA12 Bulrush-Cattail	4300			4300	40.47(0.01)
PPA13 Swamp horsetail				2000	40.47(0.01)

21.1 k1 marsh (n=21)

Natural Subregion: PEACE RIVER PARKLAND

Ecological Site: marsh (hydric/rich)

Characteristic Species

Forb

- [39] swamp horsetail
- [7] willowherb
- [4] small bedstraw
- [2] marsh skullcap

Grass

- [15] great bulrush
- [14] common cattail
- [2] beaked sedge

* Species characteristic of the phase but occurring in <70% for the sample plots with a prominence value <20.

Site Characteristics

Moisture Regime: HYGRIC(), SUBHYDRIC()

Nutrient Regime: PERMESOTROPHIC()

Topographic Position:

Slope:

Aspect:

Soil Characteristics

Organic Thickness:

Humus Form:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Soil Drainage: Poorly drained(), Very poorly drained()

Parent Material:

Soil Subgroup:

Soil Type:

Plant Community Types (n)

PPA12 Bulrush-Cattail (18)

PPA13 Swamp horsetail (3)

21.1.1

PPA12. Bulrush-Cattail

(*Scirpus acutus*-*Typha latifolia*)

n=18 This community is the same as the DMA1a-Bulrush-Cattail community of the Dry Mixedwood Guide (Willoughby et al. 2006). This wetland community type is associated with standing water and is an emergent community found in standing water of ponds and sloughs. As one moves away from the water to the drier edges, the sedge meadow communities are found. On the drier edges, the marsh reed grass community is found and willow are associated in the transition from the slough margin and the forest.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: k marsh (hydric/rich)

Ecosite Phase: k1 marsh

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Forb				Moisture Regime: HYGRIC(), SUBHYDRIC()
ARUM-LEAVED ARROWHEAD (<i>Sagittaria cuneata</i>)	1	0-3	17	Nutrient Regime: PERMESOTROPHIC()
BULB-BEARING WATER-HEMLOCK (<i>Cicuta bulbifera</i>)	1	0-3	11	Elevation (range): 606(-) M
GIANT BUR-REED (<i>Sparganium eurycarpum</i>)	9	0-80	11	Slope:
Grass				Aspect:
COMMON CATTAIL (<i>Typha latifolia</i>)	27	0-97	50	Soil Drainage: Very poorly drained()
COMMON GREAT BULRUSH (<i>Scirpus validus</i>)	6	0-60	11	Soil Subgroup:
CREEPING SPIKE-RUSH (<i>Eleocharis palustris</i>)	3	0-4	22	Soil Series:
GREAT BULRUSH (<i>Scirpus acutus</i>)	29	0-90	44	Soil Correlation:
SPANGLETOP (<i>Scolochloa festuacea</i>)	5	0-97	5	Range Site Category:
				Ecological Status Score: 24

Soil Exposure	Mean	Min	Max
%:			

Comment:

Forage Production (kg/ha) n=

	Mean	Min	Max
Forb			
Grass	4300		
Shrub			
Tree			
Total	4300	0	0

Ecologically Sustainable Stocking Rate

40.47 (40.47-40.47) HA/AUM or 0.01 (0.01-0.01) AUM/AC

The forage production amount listed is an estimate.

21.1.2

PPA13. Swamp horsetail

(*Equisetum fluviatile*)

n=3 This community is the same as the DMA20 - Swamp Horsetail community of the Dry Mixedwood Guide (Willoughby et al. 2006). It is a wetland community found near fresh water and is often associated with shallow water around lake shores or saturated wet spots in old river channels and sloughs. This community is often only found in small isolated spots or in narrow bands around the edge of lakes. As these areas dry, swamp horsetail is often replaced by sedge species. Swamp horsetail is generally unpalatable to livestock and the areas it grows in are often to wet for livestock to access.

Natural Subregion: PEACE RIVER PARKLAND

Ecosite: k marsh (hydric/rich)

Ecosite Phase: k1 marsh

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Forb				Moisture Regime: HYGRIC(), SUBHYDRIC()
MARSH SKULLCAP (<i>Scutellaria galericulata</i>)	3	0-10	33	Nutrient Regime: PERMESOTROPHIC()
SMALL BEDSTRAW (<i>Galium trifidum</i>)	7	0-20	33	Elevation (range): 586(579-600) M
SWAMP HORSETAIL (<i>Equisetum fluviatile</i>)	77	50-90	100	Slope:
WILLOWHERB (<i>Epilobium leptocarpum</i>)	13	0-40	33	Aspect:
Grass				Soil Drainage: Poorly drained(), Very poorly drained()
BEAKED SEDGE (<i>Carex rostrata</i>)	3	0-10	33	Soil Subgroup:
COMMON CATTAIL (<i>Typha latifolia</i>)	1	0-1	33	Soil Series:
WATER SEDGE (<i>Carex aquatilis</i>)	8	0-20	66	Soil Correlation:
				Range Site Category:
				Ecological Status Score: 24
Soil Exposure				
	Mean	Min	Max	
%:				
Comment:				
Forage Production (kg/ha) n=				
	Mean	Min	Max	
Forb				
Grass				
Shrub				
Tree				
Undifferentiated	2000			
Total	2000	0	0	

Ecologically Sustainable Stocking Rate

40.47 (40.47-40.47) HA/AUM or 0.01 (0.01-0.01) AUM/AC

Generally this community type would be rated as non-use in the calculation of carrying capacity for a grazing disposition, but in some cases it may be used.

The forage production amount listed is an estimate.

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